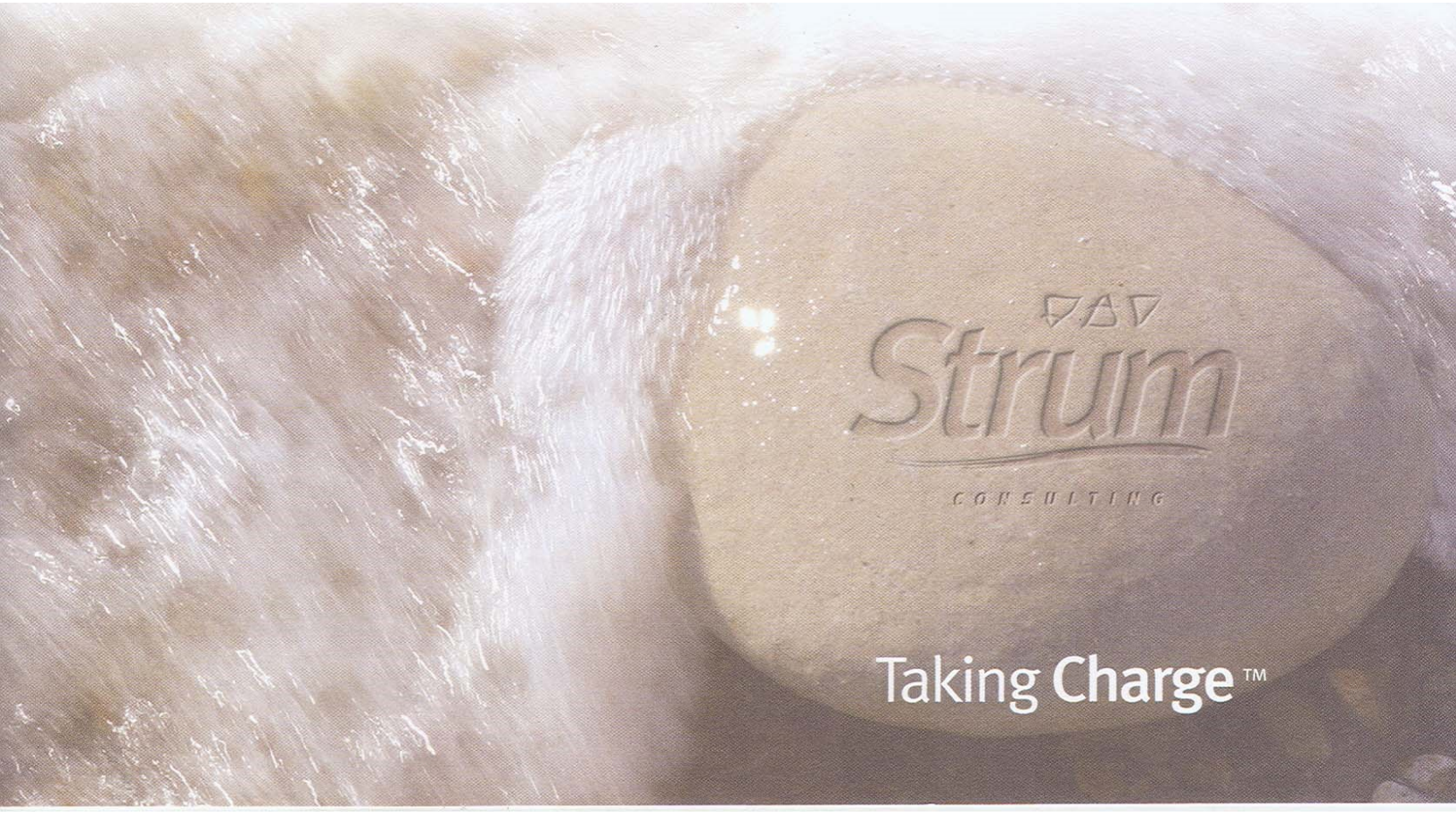
Appendix C

ENVIRONMENTAL IMPACT ASSESSMENT
REGISTRATION DOCUMENT
OAK BAY SALMON HATCHERY

April 17, 2015



April 17, 2015

Sustainable Development, Planning & Impact Evaluation Branch
NB Department of Environment and Local Government
20 McGloin Street
PO Box 6000
Fredericton, NB E3B 5H1

Re: Environmental Impact Assessment Registration Document
Oak Bay Salmon Hatchery

Attached is the Environmental Impact Assessment Registration Document for the Oak Bay Salmon Hatchery.

We trust this report to be satisfactory at this time. Once you have had an opportunity to review this correspondence, please contact us to address any questions you may have.

Thank you,

Shawn Duncan, BSc.
Vice President
sduncan@strum.com

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LIST OF ACRONYMS

ACCDC	Atlantic Canada Conservation Data Centre
COSEWIC	Committee on the Status of Endangered Wild in Canada
DFO	Department of Fisheries and Oceans
EC	Environment Canada
EIA	Environmental Impact Assessment
LFA	Lobster Fishing Area
NBDAAF	New Brunswick Department of Agriculture, Aquaculture and Fisheries
NBDELG	New Brunswick Department of Environment and Local Government
NBDNR	New Brunswick Department of Natural Resources
NBSAR	New Brunswick Species at Risk
PID	Parcel Identifier
SARA	Species at Risk Act
SOCI	Species of Conservation Interest
S-Rank	Subnational Rank
TSS	Total Suspended Solids
WTS	Wastewater Treatment System

1.0 PROPONENT DESCRIPTION

Cooke Aquaculture Inc. (Cooke) is an integrated aquaculture company based in Atlantic Canada that rears, processes, and sells Atlantic salmon, sea bass, and sea bream through its wholly-owned subsidiaries. Through its farming division, Kelly Cove Salmon, it operates a salmon hatchery in the community of Oak Haven, Charlotte County, New Brunswick. The facility consists of a hatchery, enclosed tank fields and wastewater treatment system (WTS), and includes a broodstock rearing operation for gamete production and incubation room for housing salmon eggs. Cooke purchased the Oak Bay facility in 1989 under the name Kelly Cove Salmon and it has been under their operation since.

1.2 Proponent Information

Table 1.1 highlights the contact information for the Proponent and their environmental consultant.

Table 1.1: Proponent and Consultant Information

Proponent	
Name of Proponent	Cooke Aquaculture
Postal Address	669 Main Street Blacks Harbour, NB E5H 1K1
Telephone:	(506) 466-6634
Proponent Contact	
Name	Mitchell Dickie
Official Title	Project Manager for Freshwater Systems
Address	As Above
Phone	(506)755-5282
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Website	http://www.cookeaqua.com
Consultant Contact	
Company	Strum Consulting
Name	Shawn Duncan
Official Title	Vice President
Address	Railside, 1355 Bedford Highway Bedford, NS B4A 1C5
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2.0 DESCRIPTION OF THE UNDERTAKING

2.1 Name of Undertaking

Oak Bay Hatchery Wastewater Treatment System Upgrade. The proposed undertaking will be referred to in this document as "the Project".

2.2 Location

The Project site is located at the existing Oak Bay Hatchery, 93 Oak Haven Road, Oak Haven, Charlotte County, approximately 6.5 km northeast of the town of Saint Stephen, NB (Drawing 1, Appendix A). The Project site is located within Parcel Identifiers (PIDs) 01265925, 01270503, 15155419 (the Project Property) (Drawing 1, Appendix A). The Project site is bordered by Oak Haven Road to the north and west, forested land to the south, and Oak Bay to the east. Access to the site is provided via two gated entrances along Oak Haven Road.

Project location details are provided in Table 2.1.

Table 2.1: Property Location Information

Site Name	Oak Bay Salmon Hatchery
Civic Address	93 Oak Haven Road
PID(s)	01265925, 01270503, 15155419
Community	Oak Haven, NB
County	Charlotte County
1:50 000 Topographic Map #	21G Edition 3 UTM Zone 19
Grid Reference	45°12'49.30"N, 67°11'51.43"W 5008269.75 m N, 641525.99 m E (Zone 19T)

3.0 SCOPE OF THE PROJECT

3.1 Project Background

Cooke proposes to upgrade the current WTS at their Oak Bay Hatchery by replacing the existing drum filter installation in order to meet regulatory compliance, under paragraph 8(1) of the Water Quality Regulations – Clean Environment Act. The facility is currently licensed through the New Brunswick Department of Agriculture, Aquaculture and Fisheries (NB DAAF) and operates under "Approval to Operate I-8539" (the Approval), issued by the New Brunswick Department of Environment and Local Government (NB DELG), pursuant to Paragraph 8(1) of the *Water Quality Regulation – Clean Environment Act* (Appendix A). The current Approval is effective from November 1, 2013 until October 31, 2016.

The NB Department of Environment and Local Government (NBDELG) has advised Cooke that the WTS upgrade requires registration pursuant to the Environmental Impact Assessment (EIA) Regulations (Reg. 87-83), of the *Clean Environment Act* (N.B. O.C. 87-558/1987). Projects subject to an Environmental Impact Assessment (EIA) are divided into three categories: Category I, Category II, and Category IIII. In proposing a significant modification to a waste disposal facility or

system [Schedule A (m)], the Proponent is required to register the Project as a Category I Undertaking. This document is intended to fulfil the primary requirement for Project Registration under the legislation.

3.2 Purpose and Need for the Project

The purpose of the Project is to upgrade the WTS in order to improve effluent water quality. The Certificate of Approval (COA) for the Oak Bay Hatchery requires that total nitrogen (TN) and total phosphorus (TP) at the edge of the mixing zone must be below the levels outlined in the most recent version of the *Environmental Management Program for Land Based Finfish Aquaculture in New Brunswick.* Water quality monitoring has found that effluent sampled from the WTS outflow has shown exceedences of these parameters. It was determined that the existing drum filter was of insufficient capacity during normal operations.

3.3 Consideration of Alternatives

In an attempt to improve effluent water quality, properly specified back-wash pumps were installed on existing system drum filters in 2014. Additionally, to minimize surges in flow to the WTS, swirl separators were modified to produce a continuous underflow. However, no improvement in system water quality was found, flushing was still necessary, and underflow was found to be uncontrolled during power failures. It was concluded that upgrading the wastewater system was the most effective method to improve effluent quality.

3.4 Project Schedule

It is anticipated that this EIA will be completed in approximately four months (i.e. by September 2015). Pending regulatory approval, the WTS upgrades are expected to be completed during the 2015 calendar year (weather permitting).

3.5 Regulatory Framework

<u>Federal</u>

A federal EA is not required for the Project as it is not located on federal land or listed as a physical activity that constitutes a "designated project" as listed under the Regulations Designating Physical Activities of the *Canadian Environmental Assessment Act (CEAA) (*2012*).*

<u>Provincial</u>

The NBDELG has advised Cooke that the WTS upgrade requires registration pursuant to the EIA Regulations (87-83), of the *Clean Environment Act (O.C. 87-558/1987)*. Projects subject to an EIA are divided into three categories: Category I, Category II, and Category IIII. In proposing a significant modification to a waste disposal facility or system [Schedule A (m)], the Proponent is required to register the Project as a Category I Undertaking.

Aquaculture facilities in New Brunswick are regulated under the *Aquaculture Act* and its *Regulation 91-158.* In order to conduct aquaculture in the province a license is required. The Oak Bay Facility is currently licensed through the New Brunswick Department of Agriculture, Aquaculture and

Fisheries (NBDAAF) and has an Approval to Operate (#I-8539) issued by NBDELG, pursuant to Paragraph 8(1) of the *Water Quality Regulation – Clean Water Act.*

Municipal

Any required municipal approvals (such as a building permit) will be obtained before project construction. It is not expected that there will be any additional required municipal permits.

3.6 Scope of the EIA

This document is intended to fulfill the primary requirement for Project Registration under the Environmental Impact Assessment Regulations (87-83), of the *Clean Environment Act (O.C. 87-558/1987)*. To fulfill the remaining requirements, an EIA study will be completed for submission to the NBDELG. EIA is a planning tool used to predict the environmental effects of a proposed project, identify measure to mitigate adverse environmental effects, and predict whether there will be significant adverse environment effects after mitigation is implemented.

The EIA study and report will include additional supporting information and studies to meet all requirements of the EIA Regulations (87-83), of the *Clean Environment Act (O.C. 87-558/1987)*. In addition, the EIA Report will be prepared using the following provincial guidelines:

- "A Guide to Environmental Impact Assessment in New Brunswick" (NBDELG 2012);
- "Additional Information Requirements for Aquaculture Facilities" (NBDELG 2004a);
- "Environmental Management Program for Land Based Finfish Aquaculture" (NBDELG 2013);
- "Additional Information Requirements for Wastewater Treatment Projects" (NB DELG 2004b); and
- "Additional Information Requirements for Waterworks and Water Supply Projects" (NB DELG 2005).

The EIA study will also involve discussion with the appropriate regulatory bodies for input into the Project planning process and advice regarding the EIA scope:

- NBDELG;
- NB DAAF;
- NB DNR; and
- DFO.

The scope of the EIA study for this Project includes:

- Completion of environmental studies;
- Identification of Valued Environmental Components (VECs);
- Prediction and preliminary assessment of potential interactions between the Project and VECs;
- Identification of environmental effects resulting from predicted interactions;
- Identification of necessary avoidance, mitigation and/or compensation strategies;
- The determination of residual (*i.e.*, following mitigation) effects and their significance; and
- The requirement for monitoring or follow up programs.

Additional in depth component studies will be completed to allow for a thorough assessment of project interactions and environmental effects. These components studies are listed below and will also include any further assessment or studies required by the appropriate regulatory bodies.

- Fish population and habitat study;
- Benthic survey;
- Shorebird survey;
- Hydrogeologic assessment of water resources;
- Water quality study of Oak Bay; and
- Community consultation.

4.0 DESCRIPTION OF THE PROJECT

Cooke proposes to upgrade its current WTS in order to meet the effluent guidelines outlined in the approval to operate. Details included in this section have been provided by Cooke and Soreng (a third party engineering company) (on behalf of Cooke).

The new WTS will replace the existing drum filter installation, including the building in which it is housed, with two model RFM60120 PR Aqua Drum filters (Table 4.1). Each RFM 60120 has a flow capacity of 1,020 m^3/hr with 54 µm filter panels and a total suspended solids concentration of 25 mg/L. This is sufficient to treat the existing normal flow, and provides additional capacity for surge flows. During normal flow, the influent Total Suspended Solids (TSS) concentration would be reduced by approximately 35% to 16 mg/L prior to discharge. Additional settling following drum filtration will be included if determined beneficial, given the site's space constraints. Additionally, a proper mixing zone should be established to aid in meeting regulatory compliance.

Table 4.1: Existing and New WTS Drum Filter Parameters.

	Quantity	Drum Filter Make	Drum Filter Capacity	Effluent Treatment System Capacity	Effluent Treatment System Surplus
Existing Drum Filter	1	PR Aqua RFM3236	163 m^3/hr	163 m^3/hr	55 m^3/hr
New Drum Filter	2	PR Aqua RFM60120	1,020 m^3/hr	2,040 m^3/hr	1,932 m^3/hr

4.1 Existing Facility

4.1.1 Water Use

The Oak Bay Hatchery utilizes re-circulation technology requiring approximately 164 m^3/hr of water at peak production. Water is supplied from a combination of wells and freshwater springs, and provides an average flow between 80 m^3/hr and 110 m^3/hr. Water is then distributed throughout the facility via 8 water lines that each service separate tanks: lines A, B, C, D, E, F, G (G5, G6, G7, & G8), and Egg Room. Water from the freshwater springs are distributed to all lines. Well water from Wells 1 through 6 service lines A, B, C, D, E, G, and Egg Room. Well water from Wells 7 and 8 supply water directly to lines E and F.

4.1.2 Operation and Maintenance

The Oak Bay Hatchery consists of a hatchery, enclosed tank field, WTS, and a broodstock operation for gamete production and an incubation room for housing salmon eggs. The facility uses recirculation technology and requires approximately 60 m^3/hr of fresh water to operate, which is provided by wells and freshwater springs on site. The facility houses 33 tanks of varying sizes for a total tank volume of 2,985.6 m^3 (Table 4.2). From each tank, water is passed through a swirl separator and then a drum filter before being recirculated into the system. Volume capacities for the drum filters are provided in Table 4.1.

Table 4.2: Operational Requirements and Design Capacities

Line	Number of Tanks	Individual Tank Volume	Total System Volume	Recirculation Flow	Drum Filter Make	Drum Filter Capacity	Max. Feed
A & B	12	24.0 m^3	288.0 m^3	385 m^3/hr	Hydrotech 1204	475 m^3/hr	420 kg/day
C	4	13.9 m^3	55.6 m^3	N/A	N/A	N/A	N/A
D	2 3	136.0 m^3 25.2 m^3	348.0 m^3	318 m^3/hr	Hydrotech 1604	634 m^3/hr	200 kg/day
E	4	228 m^3	912.0 m^3	456 m^3/hr	PR Aqua (60120)	1,022 m^3/hr	400 kg/day
F	4	189.0 m^3	756.0 m^3	456 m^3/hr	Atlantech (4872)	515 m^3/hr	400 kg/day
G5 & G6	2	141.0 m^3	282.0 m^3	240 m^3/hr	Atlantech (4848)	343 m^3/hr	300 kg/day
G7 & G8	2	172.0 m^3	344.0 m^3	240 m^3/hr	Atlantech (4848)	343 m^3/hr	300 kg/day
Egg Room	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Drum filter back wash, swirl separator flushes, and contact filter wash down water is combined with system discharges from overflow stand pipes to form the effluent discharge. Effluent discharge then passes through a drum filter and settling pond/s before being discharged into Oak Bay. Water supply to the effluent treatment system can be as high as 108 m^3/hr, with a total weekly average outflow of 13,100 m^3. Swirl separators are flushed once per day, contact filters are washed once per week and all back wash pumps are operating continuously.

The existing treatment system incorporates recirculation technology with the wastewater treated for the removal of solids using a PR drum filter, model RFM3236. The drum filter has a flow capacity of 163 m^3/hr with 54 µm filter panels and TSS concentration of 25 mg/L. The settling velocity of visible solids following drum filtration is 1.04×10^{-4} m/s.

4.1.3 Fish Health

Fish Care is provided as outlined in the NBDAAF's Environmental Management Program for Land Based Finfish in New Brunswick, the Department of Fisheries and Oceans' (DFO) Fish Health Surveillance Program, and the General Regulations of the *Aquaculture Act*. A qualified Cooke veterinarian performs monthly site visits. Mortalities are collected daily, their potential cause of death recorded and are disposed of in an appropriate method. Any presence of disease is reported immediately to the NB DAAF, and a report submitted containing the following: results and information from diagnostic work; the name, dosage and total amount of drug or chemical agent administered; the time period in which the drug was administered; the temperature of the water at the time when the drug or chemical agent was administered; and the lot and number of aquacultural produce treated. Table 4.3 provides a list of Industry Codes of Practice, corporate programs, certification programs, and regulations followed by Cooke at the Oak Bay Hatchery.

Table 4.3: Fish Health Industry Codes of Practice, Programs, and Regulations

Program or Guideline	Publisher
National Code of Introduction and Transfers of Aquatic Organisms	DFO
Fish Health Surveillance Program	DFO
Fish Health Protection Regulations	DFO
General Regulations – *Aquaculture Act*	NBDAAF
Environmental Management Program for Land Based Finfish Aquaculture in New Brunswick	NBDELG
Fish Health Management Plan	Cooke Aquaculture
Containment Management System	Cooke Aquaculture
Integrated Contingency Plan	Cooke Aquaculture

4.1.4 Waste Disposal

At the Oak Bay Hatchery, waste is generally defined as damaged, defective, or excess material produced through normal operations of the facility. A waste is considered uncontrolled should it leave the facility in a manner not covered in the facility's Waste Management Plan (WMP). Types of waste that may be generated from the facility and potential sources are described as follows:

- **Operational Debris**: feed bags, pallets, rope, tanks, litter and other inorganic materials that may come from daily operation of the facility;
- **Hazardous Waste**: includes petroleum products, paints, or other materials used at the facility;
- **Human Waste**: includes metabolic waste products from staff and visitors to the facility;
- **Routine Mortalities**: include dead and moribund stock removed from the tanks;
- **Major Stock Loss**: includes mortalities greater than that expected through normal operations;
- **Feed and Feces**: includes fish feed that was not consumed by the stock, and spill from automatic or manual feeding systems, as well as feces produced by the stock; and
- **Egg Take Wastes**: includes materials produced by on-site egg take practices such as stripping and bleeding.

A complete copy of the current WMP is available in Appendix B.

4.1.5 Chemical Materials

A comprehensive review of chemical materials which are stored and consumed on the site is to be conducted as part of the EIA.

4.2 Project Components

4.2.1 Site Preparation and Construction

Site preparation will involve the destruction and removal of the existing WTS which consists of three buildings on the eastern edge of the property (labelled belt filter and solids tanks in Drawing 1, Appendix A). The new WTS will occupy an area of approximately 27 m x 7 m and be located in close proximity to the existing WTS location. Typical construction activities will occur on the site during the construction phase.

4.2.2 Operation and Maintenance

Typical operations and maintenance tasks are expected to continue, although adaptions will be made as required, in order to operate the new WTS. In addition, new operational or maintenance practices may be identified during the EIA and will be implemented.

5.0 DESCRIPTION OF EXISTING ENVIRONMENT

5.1 Oceanographic Environment

5.1.4 Water Quality and Temperature

The Bay of Fundy has an average summer water temperature of 8°C to 12°C and winter temperatures of 0°C to 4°C (EC, 1997).

Oak Bay is an estuary which receives water inputs from the St. Croix River and Gallop River, as well as the Bay of Fundy which is reflected in its brackish salinity. Several sources of high nutrient loading exist around the bay including effluent from the hatchery, and surface runoff and septic tank groundwater flux from cottages, houses, and the Oak Bay Campground located along the shoreline. Additionally, agricultural and forestry practices in the area may be contributing to the water quality conditions in Oak Bay as a result of surface runoff. To fully evaluate water quality in Oak Bay, a water quality assessment will be conducted as part of the EIA.

5.1.5 Tides and Currents

The Bay of Fundy experiences semidiurnal tides with a tidal period of approximately 12 hours and 25 minutes (DFO, 2014). The confined nature of the St. Croix River results in exaggerated tidal extremes for the lower reaches of the watershed. The nearest tidal station to the Project site monitored by DFO is in the St. Croix River located 6.5 km west in St. Stephen, NB. Predicted hourly water data from DFO indicates high tides amounting to 7.9 m for St. Stephen in 2014 (DFO, 2014).

5.2 Atmospheric Environment

5.2.1 Weather and Climate

Climate in the region is marked by warm, rainy summers and mild, snowy winters. The mean annual temperature is approximately 5°C. The mean summer temperature is 15°C and the mean winter temperature is -5°C. The mean annual precipitation ranges 1100-1400 mm (NBDNR, 2007).

Local temperature and precipitation data were obtained from the Pennfield meteorological station (45°06'00.00N, 66°44'00.00W) located approximately 38.7 km southeast of the Project site. For the period from 1981-2010, the mean annual temperature was 5.2°C, with a mean daily high of 10.4°C and a mean daily low of -0.1°C (EC 2015a). January and February were the coldest months (-7.1°C and -5.5°C, respectively), while the warmest months were July and August (15.6 °C and 15.6°C, respectively) (EC, 2015a).

From 1981-2010, mean annual snowfall was 192.0 cm and rainfall was 1,237.7 mm (EC, 2015a). Most snowfall is received in January and March (53.5 cm and 45.2 cm, respectively), while the rainiest months are May and November (130.2 mm and 132.2 mm, respectively) (EC, 2015a).

5.2.2 Air Quality

NBDELG monitors air quality at seven stations throughout the province. Measured parameters include ground-level ozone (O_3), particulate matter (PM2.5), and nitrogen dioxide (NO_2), and these values are used to calculate a score on the Air Quality Health Index (AQHI) (EC, 2015b). The AQHI is a scale from 1-10+, in which scores represent the following health risk categories: Low (1-3), Moderate (4-6), High (7-10), and Very High (10+). The closest AQHI monitoring stations are located in Saint John and Fredericton, approximately 89 km east and 93 km northeast of the site respectively. The AQHI at this site is usually low at all times of the year (EC, 2015b).

5.3 Geophysical Environment

5.3.1 Geology

The Project site lies within the Southern New Brunswick Uplands ecoregion which forms a 40 km wide band that runs parallel to the Bay of Fundy and along the United States border to the Saint John River valley (NBDNR, 2007). The region's surface represents the southeast-sloping Appalachian peneplain and can reach elevations above 350 m above sea level. The terrain decreases in elevation and levels out to the west, where rolling and hummocky stony till plains are predominant (NBDNR, 2007).

The Project site is located on a low lying terrain, gently sloping to the northeast towards Oak Bay. Elevation on the site ranges from 15 m at the southwestern property boundary to sea level at Oak Bay.

Surficial geology in the vicinity of the Project site is characterized as Late Wisconsinan and/or Early Holocene aged Lacustrine and Marine Sediments. Surficial material in these areas consist of sand,

silt, minor clay and gravel, with a patchy thin veneer of organic sediment; generally 1 to 10 m thick (Rampton, 1984).

Bedrock geology across the Project site consists of Cambrian Ordovician aged Calais Formation of the Cookson Group (NBDNRE, 2000). Sedimentary rocks in this formation are characterized as fine-grained, off shore to deep-marine, siliciclastic rocks comprised of black carbonaceous shale interstratified within minor thin-bedded siltstone and pillow basalt (Fyffe and Riva, 1990).

Based on well log records in the vicinity of the Project site, overburden thickness is reported to range from 0.9 – 17.7 m (NBDOE, 2015). Surficial material encountered included till, clay, gravel, and sand followed by slate or shale bedrock to depths ranging from 12.8 m to 137.1 m (NBDOE, 2015). The dominant soil consists of basal tills of the Carleton Unit (Clayton, 2006). These finely textured soils are silty loam to clay loam and are poorly drained due to the low relief (Clayton, 2006).

5.3.2 Hydrogeology and Groundwater

Water supplies near the Project site are generally derived from individually drilled or dug wells. A summary of the pertinent (within 1 km of the Project site) well properties included in the NBDOE Online Well Log System (NBDOE, 2015) is presented in Table 5.1.

Table 5.1: Summary of Well Records

Well #	Installation Date	Well Depth (m)	Casing Length (m)	Overburden Thickness (m)	Hydro-stratigraphic Unit	Water Bearing Fractures (m)	Estimated Safe Yield (Lpm)	Estimated Distance from Project Area (m)
11619	09/15/2004	12.8	12.8	6.1	Gravel	12.2	1001	On-site
29110	02/13/2012	137.16	6.1	9.14	Slate	22.8, 38.1, 85.3, 128.0	591.5	On-site
659	02/16/2002	50.29	14.94	4.57	Slate	17.9, 42.7	22.75	200
6319	08/14/2002	112.78	10.36	9.14	Slate	109.7	6.82	400
90479500	10/28/1995	38.1	19.81	3.05	Slate	24.4, 33.5	45.5	900
26000	07/28/2011	68.58	6.1	4.57	Shale	35.0	4.55	950
17138	01/17/2007	70.1	6.1	0.91	Shale	48.8	3.41	1000
91048200	10/16/1997	64.01	6.1	4.88	Slate	53.3, 57.9	9.1	1000
Minimum		12.8	6.1	0.91	-	12.2	3.41	-
Maximum		137.16	19.81	9.14	-	128.0	1001	-
Average		69.23	10.29	5.30	-	48.5	210.58	-

Source: NBDOE 2015

Two records for on-site wells were recovered. A shallow well installed to a depth of 12.8 m through sand and gravel is estimated to yield approximately 1001 lpm (264.4 gpm). The second well was drilled to a depth 137.16 m through clay and gravel, followed by slate and is estimated to yield approximately 591.5 lpm (156.3 gpm).

Based on short term driller's estimates for all wells in Table 5.1, the average yield is approximately 210.58 Lpm (55.61.2 gpm) and average well depth is approximately 69.23 m (227.1 ft). These measurements represent very short term yields estimated by the driller at the completion of well construction. Fracture depths ranged from 12.2 m (40 ft) to 128 m (419.8 ft). The closest off-site drilled well is located 200 m to the south along Oak Haven Road.

5.3.3 Surficial Hydrology

The Project site is in the Canoose Stream Composite of the St. Croix River Watershed, which drains into Passamoquoddy Bay and then the Bay of Fundy. The St. Croix River has its headwaters at the Chiputneticook Lakes along the Maine-New Brunswick border. The Project site is located in Oak Bay, an offshoot of the lower reaches of the St. Croix River and experiences extreme tides associated with the Bay of Fundy.

A review of the GeoNB database (Service New Brunswick, 2015) identifies one mapped watercourse on the Project site.

There are no protected watersheds within 500 m of the Project site. The closest protected watersheds are the Chamcook Watershed and the Dennis Stream Watershed. The Chamcook Watershed is located 2.46 km southeast and has a total area of 24.8 km^2. The largest lake, Chamcook Lake, is used as a drinking water supply for the Town of St. Andrews. The Dennis Stream Watershed is located 4.5 km northwest of the Project site and has a total area of 95.8 km^2. The Dennis Stream Watershed is used as a drinking water supply for the Town of St. Stephen.

5.4 Aquatic Environment

The upwelling of deep ocean currents associated with the forceful tides of the Bay of Fundy creates an ideal feeding and nursing ground for aquatic animals and results in a diversity and abundance of birds, fish, marine mammals, and sea turtles. The St. Croix River estuary, including Oak Bay, is an environmentally significant area for birds and fish (ACCDC, 2015).

5.4.1 Benthic Habitat and Invertebrates

Substrate in the Project area consists mostly of sand and mud. There is little benthic vegetation in the bay adjacent to the Project site, however there are two provincially significant wetlands located along the bay 0.5 km NE and 0.6 km SE of the Project site. The estuary provides crucial feeding and staging area for waterfowl and shorebirds, for this reason a benthic survey will be conducted as part of the EIA to identify habitat and benthic invertebrates present within Oak Bay.

5.4.2 Fish Habitat

Estuaries and coastal environments are often areas of high productivity and boast a large diversity and abundance of biomass. The dynamic state of estuarine environments often results in an array of species with differing ecological preferences. Commonly found fish species within the coastal zone of the southwestern Bay of Fundy include (Arens, 2003):

- Atlantic Silverside (*Menidia menidia*);
- Rainbow Smelt (*Osmerus mordax*);

- Atlantic Herring (*Clupea harengus*);
- Atlantic Tomcod (*Microgadus tomcod*);
- Winter Flounder (*Pseudopleuronectes americanus*);
- Shorthorn Sculpin (*Myoxocephalus scorpius*);
- Blackspotted Stickleback (*Gasterosteus wheatlandi*);
- Threespine Stickleback (*Gasterosteus aculeatus*);
- Alewife (*Alosa pseudoharengus*);
- Grubby (*Myoxocephalus aenaeus*);
- Pollock (*Pollachius virens*);
- Lumpfish (*Cyclopterus lumpus*);
- Sea Raven (*Hemitripterus americanus*);
- White Hake (*Urophycis tenuis*);
- Blueback Herring (*Alosa aestivalis*);
- American Eel (*Anguilla rostrata*));
- Atlantic Cod (*Gadus morhua*); and
- Windowpane (*Scophthalmus aquosus*)

Oak Bay is a brackish water area, with extreme tides and a muddy substrate. To fully assess Project impacts on fish, a fish population and habitat study in the area around the Project site will be completed as part of the EIA.

5.4.3 Marine Life

The upwelling of deep ocean currents associated with the forceful tides of the Bay of Fundy creates an ideal feeding and nursing ground for marine mammals and sea turtles. The Bay of Fundy is home to several species of marine mammals, including:

- Minke whale (*Balaenoptera acutorostrata*);
- Humpback whale (*Megaptera novaeangliae*);
- Finback whale (*Balaenoptera physalus*);
- North Atlantic right whale (*Eubalaena glacialis*);
- Harbour porpoise (*Phocoena phocoena*);
- White-sided dolphin (*Lagenorhynchus acutus*);
- Leatherback sea turtle (*Dermochelys coriacea*);
- Loggerhead sea turtle (*Caretta caretta*);
- Green sea turtle (*Chelonia mydas*);
- Grey seal (*Halichoerus grypus*); and
- Harbour seal (*Phoca vitulina*).

Most large marine mammals stay in the deeper portions of the Bay of Fundy and will rarely venture into estuaries, small coves, and inlets. For this reason, most marine life observations recorded by the ACCDC occur at location greater than 25 km from the Project site (ACCDC, 2015). Harbour porpoises prefer shallow coastal waters and will often travel into bays and coves. Sea turtles will also forage in coastal waters.

5.4.4 Commercial, Recreational and Aboriginal Fisheries

Commercial
The nearest aquaculture site is the Elmsville Hatchery located 16 km east on the Digdequash River which drains into Passamoquoddy Bay.

Commercial fishing activity in Oak Bay is focused in the deeper regions at the mouth of the Bay off Todd's Point. The muddy substrate and extreme tides is not conducive to supporting good fish habitat. Oak Bay is part of a lobster fishing area (LFA) 36 and some lobster fishing occurs in the deeper sections of the bay by the mouth (DFO – Pers. Comm.). Downstream from Oak Bay, in Passamoquoddy Bay, there are 13 Small Craft Harbours, 10 of which are considered essential to the commercial fishing industry. There is a small commercial shellfish industry in Oak Bay towards the mouth of the bay, for scallop and sea urchins, and commercial clam fishing occurs during certain times of the year when water quality permits it (DFO – Pers. Comm).

A small industry for eel/elver and gaspereau exists during their migratory period as they travel upstream (DFO – Pers. Comm.). Rockweed (*Ascophylum nodosum*) is harvested commercially for the production of a natural fertilizer.

Recreational
Within Oak Bay, two culverts which are located approximately 1.5 km from the Project site by Oak Bay Provincial Park are a popular area for recreational fishermen during the fall when striped bass are migrating upstream. Flounder is occasionally fished, but the muddy substrate does not allow for a large groundfish population (P.Turmel, NBDNR – Pers. Comm.).

Gallop Stream used to support an Atlantic Salmon run, however, their population has disappeared in recent years. Gallop Stream does support a large Brook Trout population and is popular amongst recreational fishermen (P.Turmel, NBDNR – Pers. Comm.).

Due to the poor water quality, there is no recreational fishing of shellfish in Oak Bay.

Aboriginal
There are no known aboriginal fisheries within Oak Bay.

5.4.5 Navigation
The Bay of Fundy experiences extreme tidal ranges and the southern New Brunswick coastline can experience tides of up to 8 m. Harbour design and size are influenced by these tidal fluctuations. The Project site is off of the Passamaquoddy Bay which has 13 Small Craft Harbour (SCH) managed harbours along its mouth. Ten of these harbours are core fishing harbours, essential to the fishing industry, and three are non-core harbours (DFO, 2014). There are no SCH recreational harbours on the southern New Brunswick coast (DFO, 2014). The closest SCH to the Project site is Fairhaven, located approximately 31 km to the southeast.

Commercial fishing activity in Oak Bay is focused by the mouth of the Bay off Todd's Point. Boat traffic closer to the Project site would be limited to recreational boaters.

5.5 Birds

The Project site is contained in the squares 19FL30 of the Maritime Breeding Bird Atlas (MBBA 2012). In the most recent edition of the MBBA (covering the years 2006-2010), 58 species were identified as being possible, probable, or confirmed breeders within this area. The following bird species are listed as 'Confirmed' breeders in the area:

- Eastern Phoebe (*Sayornis phoebe*);
- Red-eyed Vireo (*Vireo olivaceus*);
- American Crow (*Corvus brachyrhynchos*);
- Tree Swallow (*Tachycineta bicolor*);
- Bank Swallow (*Riparia riparia*);
- Cliff Swallow (*Petrochelidon pyrrhonota*);
- Barn Swallow (*Barn Swallow*);
- Black-capped Chickadee (*Poecile atricapillus*);
- House Wren (*Troglodytes aedon*);
- American Robin (*Turdus migratorius*);
- Gray Catbird (*Dumetella carolinensis*);
- Common Yellowthroat (*Geothlypis trichas*);
- Yellow Warbler (*Dendroica petechia*);
- Pine Warbler (*Dendroica pinus*);
- Northern Cardinal (*Cardinalis cardinalis*);
- Red-winged Blackbird (*Agelaius phoeniceus*);
- Purple Finch (*Carpodacus purpureus*); and
- House Finch (*Carpodacus mexicanus*).

Due to the importance of Oak Bay as a foraging site for birds, a bird survey within the Oak Bay mudflats will be completed as part of the EIA.

5.6 Wetlands

A review of the GeoNB Database indicates that there are no Provincially Significant Wetlands (PSW) or regulated wetlands on the Project site (Service New Brunswick, 2015). GeoNB identified two PSW within 1 km of the Project site (Drawing 2, Appendix A). Both salt marshes, one is located 0.5 km northeast and the other is 0.6 km southeast of the Project site. The closest regulated wetland is a 3.84 ha bog located 2.5 km southwest of the Project site.

5.7 Terrestrial Habitat

The Project site is located in the Magaguadavic Ecodistrict of the New Brunswick Valley Lowlands Ecoregion. The Valley Lowlands Ecoregion extends from Edmunston, NB, in the north down to Passamoquoddy Bay, and from the Maine border almost reaching the Petitcodiac River in the east.

The majority (18%) of the Magaguadavic Ecodistrict is forested. The remaining 18% is largely comprised of water and wetlands. Forest coverage consists mainly of spruce species (white and red spruce), intolerant hardwood and softwood stands, tolerant hardwood with softwood stands, and white cedar stands. The Grassy Islands in St. Croix River provide a diversity of ecosystems, including grasslands, shoreline forests, and freshwater marshes. The St. Andrews headland and the St. Croix estuary provides important habitat for waterfowl and shorebirds, including feeding and staging habitat.

A review of the GeoNB database indicates that there are no provincially protected natural areas within 500 m of the Project site. The closest protected natural areas are Crown Lily Pond Brook natural area (1.55 km^2) located 19.5 km northeast, and the Caughey-Taylor natural area (1.87 km^2) located 11.5 km southeast. One provincial park, Oak Bay Provincial Park, is located 1.4 km north/northeast.

The ACCDC database identified four environmentally significant areas within 5 km of the Project site (ACCDC, 2015) (Table 5.2). These sites are significant for their geological value and their provision of valuable fish, bird and plant habitat.

Table 5.2. Environmentally Significant Areas within 5 km of the Project Site (ACCDC 2015)

ESA Name	Distance from Project	Reason of Significance
Oak Bay/Spoon Island ESA	1.5 km E	Geology
Warweig River ESA	4.5 km E	Fish/Bird/Plants
St. Croix Mountain ESA	3.5 km SE	Bird
St. Croix River Estuary ESA	Adjacent to site	Bird/Fish
Highway 1, Exit 14 to St. Andrew's	3.5 km SE	Geology

There are two managed areas within 5 km of the Project site, Oak Bay Provincial Park, and the Ganong Nature Park at Todd's Point (ACCDC, 2015).

5.8 Species of Conservation Interest

A review of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted for recorded observations of species within a 100 km radius of the Project site. A shortlist of species of conservation interest (SOCI) was developed from the species identified in the review based on provincial and national rarity rankings. SOCI include those that are:

- Listed federally under the *Species at Risk Act* (SARA) as 'Endangered', 'Threatened' or 'Special Concern';
- Listed provincially under New Brunswick Species at Risk (NBSAR) as 'Endangered', 'Threatened' or 'Special Concern';
- Assessed by Committee on the Status of Endangered Wild in Canada (COSEWIC) as 'Endangered', 'Threatened' or 'Special Concern';
- Assessed by New Brunswick Department of Natural Resources (NBDNR) as 'At Risk', 'May be at Risk' or 'Sensitive'; and/or
- Have an S-Rank of 'S1', 'S2' or 'S3'.

Table 5.3 highlights species that are listed under SARA or under NBSAR. A complete list of SOCI species is available in Appendix C

Table 5.3. SOCI observed within a 100km radius and listed under SARA or NBSAR

Common Name	Scientific Name	SARA	NB SAR	COSEWIC	NB General Status	S-Rank
Fish						
Atlantic Salmon - Inner Bay of Fundy pop.	*Salmo salar pop. 1*	Endangered	Endangered	Endangered	May Be At Risk	S2
Atlantic Sturgeon	*Acipenser oxyrinchus*	Not Listed	Threatened	Threatened	Secure	S3
American Eel	*Anguilla rostrata*	Not Listed	Threatened	Threatened	Secure	S5
Lake Utopia Smelt large-bodied pop.	*Osmerus mordax pop. 2*	Not Listed	Threatened	Threatened	Not Listed	Not Listed
Shortnose Sturgeon	*Acipenser brevirostrum*	Special Concern	Special Concern	Special Concern	Sensitive	S2
Redbreast Sunfish	*Lepomis auritus*	Special Concern	Not Listed	Data Deficient	Secure	S3?
Brook Floater	*Alasmidonta varicosa*	Not Listed	Special Concern	Special Concern	Sensitive	S1S2
Yellow Lampmussel	*Lampsilis cariosa*	Special Concern	Special Concern	Special Concern	Sensitive	S2
Marine Life						
North Atlantic Right Whale	Eubalaena glacialis	Endangered	Endangered	Endangered	No Rank	S1
Leatherback Sea Turtle - Atlantic pop.	Dermochelys coriacea (Atlantic pop.)	Endangered	Endangered	Endangered	At Risk	S1S2N
Fin Whale - Atlantic pop.	Balaenoptera physalus	Special Concern	Special Concern	Special Concern	No Rank	S2S3
Harbour Porpoise - Northwest Atlantic pop.	Phocoena phocoena (NW Atlantic pop.)	Threatened	Not Listed	Special Concern	No Rank	S4
Humpback Whale (NW Atlantic pop.)	Megaptera novaeangliae	Special Concern	Not Listed	Not At Risk	No Rank	S3
Atlantic White-sided Dolphin	Lagenorhynchus acutus	Endangered	Not Listed	Not At Risk	No Rank	S3S4
Mammals						
Eastern Pipistrelle/ Tri-coloured bat	*Perimyotis subflavus*	Endangered	Endangered	Endangered	At Risk	S1
Little Brown Myotis	*Myotis lucifugus*	Endangered	Not Listed	Endangered	Not	Not

Common Name	Scientific Name	SARA	NB SAR	COSEWIC	NB General Status	S-Rank
					Listed	Listed
Canadian Lynx	*Lynx canadensis*	Not Listed	Endangered	Not At Risk	At Risk	S1
Long-tailed Shrew	*Sorex dispar*	Special Concern	Not Listed	Not At Risk	Sensitive	S1
Cougar - Eastern pop.	*Puma concolor pop. 1*	Not Listed	Endangered	Data Deficient	Undetermined	SU,SH
Northern Long-eared Myotis	*Myotis septentrionalis*	Endangered	Endangered	Endangered	At Risk	S1
Bird						
Roseate Tern	*Sterna dougallii*	Endangered	Endangered	Endangered	At Risk	S1B
Piping Plover melodus ssp	*Charadrius melodus melodus*	Endangered	Endangered	Endangered	At Risk	S2B
Red Knot rufa ssp	*Calidris canutus rufa*	Not Listed	Endangered	Endangered	At Risk	S3M
Prothonotary Warbler	*Protonotaria citrea*	Endangered	Not Listed	Endangered	Accidental	SNA
Northern Bobwhite	*Colinus virginianus*	Endangered	Not Listed	Endangered	Not Listed	Not Listed
Least Bittern	*Ixobrychus exilis*	Threatened	Threatened	Threatened	At Risk	S1S2B
Wood Thrush	*Hylocichla mustelina*	Not Listed	Threatened	Threatened	May Be at Risk	S1S2B
Eastern Meadowlark	*Sturnella magna*	Not Listed	Threatened	Threatened	May Be at Risk	S1S2B
Whip-Poor-Will	*Caprimulgus vociferus*	Threatened	Threatened	Threatened	At Risk	S2B
Chimney Swift	*Chaetura pelagica*	Threatened	Threatened	Threatened	At Risk	S2S3B
Bicknell's Thrush	*Catharus bicknelli*	Special Concern	Threatened	Threatened	At Risk	S2S3B
Common Nighthawk	*Chordeiles minor*	Threatened	Threatened	Threatened	At Risk	S3B
Barn Swallow	*Hirundo rustica*	Not Listed	Threatened	Threatened	Sensitive	S3B
Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Threatened	Threatened	At Risk	S3S4B
Canada Warbler	*Wilsonia canadensis*	Threatened	Threatened	Threatened	At Risk	S3S4B
Bobolink	*Dolichonyx oryzivorus*	Not Listed	Threatened	Threatened	Sensitive	S3S4B
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Threatened	Not Listed	Threatened	Accidental	SNA
Golden-winged Warbler	*Vermivora chrysoptera*	Threatened	Not Listed	Threatened	Accidental	SNA

Common Name	Scientific Name	SARA	NB SAR	COSEWIC	NB General Status	S-Rank
Peregrine Falcon - anatum/ tundrius	*Falco peregrinus pop. 1*	Special Concern	Endangered	Special Concern	At Risk	S1B
Harlequin Duck - Eastern pop.	*Histrionicus histrionicus pop. 1*	Special Concern	Endangered	Special Concern	At Risk	S1B, S1N
Short-eared Owl	*Asio flammeus*	Special Concern	Special Concern	Special Concern	Sensitive	S3B
Rusty Blackbird	*Euphagus carolinus*	Special Concern	Special Concern	Special Concern	May Be at Risk	S3B
Eastern Wood-Pewee	*Contopus virens*	Not Listed	Special Concern	Special Concern	Secure	S4B
Red-shouldered Hawk	*Buteo lineatus*	Special Concern	Not Listed	Not At Risk	May Be at Risk	S2B
Bald Eagle	*Haliaeetus leucocephalus*	Not Listed	Endangered	Not At Risk	At Risk	S3B
Horned Grebe	*Podiceps auritus*	Not Listed	Special Concern	Not Listed	Secure	S4M, S4N
Vascular Plants						
Butternut	*Juglans cinerea*	Endangered	Endangered	Endangered	At Risk	S1
Van Brunt's Jacob's-ladder	*Polemonium vanbruntiae*	Threatened	Threatened	Threatened	At Risk	S1
Anticosti Aster	*Symphyotrichum anticostense*	Threatened	Endangered	Threatened	At Risk	S1S3
Willow-leaved Aster	*Symphyotrichum praealtum*	Threatened	Not Listed	Threatened	Exotic	SNA
Prototype Quillwort	*Isoetes prototypus*	Special Concern	Endangered	Special Concern	At Risk	S2
Woodland Pinedrops	*Pterospora andromedea*	Not Listed	Endangered	Not Listed	At Risk	S1
Southern Twayblade	*Listera australis*	Not Listed	Endangered	Not Listed	At Risk	S2
Non-Vascular Plants						
Blue Felt Lichen	Degelia plumbea	Special Concern	Special Concern	Special Concern	May Be at Risk	S1
Boreal Felt Lichen - Atlantic pop.	Erioderma pedicellatum (Atlantic pop.)	Endangered	Endangered	Endangered	At Risk	SH

6.0 SOCIO-ECONOMIC ENVIRONMENT

6.1 Population, Demographics and Employment

The Project is located at 93 Oak Haven Road, Oak Haven, Charlotte County, approximately 6.5 km northeast of the town of St. Stephen, New Brunswick. Charlotte County is located in southwestern New Brunswick and borders the state of Maine, which makes it the closest entry point to markets in New England and the eastern seaboard of the United States. Charlotte County is a rural area with six municipalities: the town of St. Stephen, the town of St. Andrews, the town of St. George, the village of Grand Manan, the village of Blacks Harbour, and the community of Campobello. The largest communities in Charlotte County include the town of St. Stephen (pop. 4,817), the village of Grand Manan (pop. 2,377), and the town of St. Andrews (pop. 1,889) (Statistics Canada 2012). The area surrounding the Project site is sparsely populated by the small communities of Benson Corner (0.5 km), Oak Haven (1.5 km), and Oak Bay (1.9 km).

Population statistics for Saint David Parish Census Subdivision (includes Oak Haven) and Charlotte County derived from the 2011 census are summarized in Table 6.1.

Table 6.1: Population in the Saint David Parish Census Subdivision and Charlotte County

Population Statistics	Saint David Parish Census Subdivision	Charlotte County
Population in 2011	1,605	26,549
Population in 2006	1,499	26,898
Population change from 2006-2011 (%)	7.1	-1.3
Total private dwellings in 2011	787	13,486
Land area (square km)	189.9	3,424.3
Population density per square kilometre	8.5	7.8

Source: Statistics Canada 2012

The age distribution in the Saint David Parish and Charlotte County reveals a median age of 47.8 years and 45.1 years, which are both slightly higher than the provincial median age (43.7) (Statistics Canada, 2012). An overview of age distribution for 2011 for the Saint David Parish and Charlotte County is outlined in Table 6.2 below.

Table 6.2: Age Distribution in the Saint David Parish Census Subdivision and Charlotte County

Age Statistics	Saint David Parish Census Subdivision	Charlotte County
0 - 14 years	230 (14.3%)	4,040 (15.2%)
15 - 64 years	1,100 (68.5%)	17,770 (66.9%)
65+ years	275 (17.2%)	4,735 (17.9%)
Total Population	**1,605 (100%)**	**26,550 (100%)**

Source: Statistics Canada 2012

In 2011, the median income for individuals in the Saint David Parish and Charlotte County was $30,149 and $22,224 a year respectively, compared with the median income of $26,582 for New Brunswick (Statistics Canada, 2013). The average income for the Saint David Parish was higher than the Canadian median of $29,878 in the same year. The median value of dwellings in the Parish and County in 2011 was $109,685 and $120,010 respectively. In comparison, the median value of dwellings in the province and in Canada during the same year was $139,557 and $280,552, respectively (Table 6.3).

Table 6.3: Median Dwelling Value and Individual Income

Jurisdictions	Median Dwelling Value	Median Individual Income
Saint David Census Subdivision	$109,685	$30,149
Charlotte County	$120,010	$22,224
Province of New Brunswick	$139,557	$26.582
Canada	$280,552	$29,878

Source: Statistics Canada 2013

Employment and unemployment rates for 2011 in the Saint David Parish indicate that the unemployment rate was 9.5%, which is lower than the Charlotte County and provincial average of 12.3% and 11%, respectively (Statistics Canada, 2013). With regard to employment rates, the Saint David Parish employment rate of 57.4% was found to be higher than the Charlotte County and provincial rates of 52.6% and 56.5%, respectively (Statistics Canada, 2013).

A breakdown of the labour force within Saint David Parish and Charlotte County is provided in Table 6.4. The highest proportion of workers in the Saint David Parish and Charlotte County are in the manufacturing industry, while the highest proportion of workers in the province is in the “health care and social assistance” category (Statistics Canada, 2006).

Table 6.4: Labour Force by Industry in Saint David Parish, Charlotte County and New Brunswick

Total	Saint David Parish	Charlotte County	New Brunswick
Total experienced labour force 15 years +	835	13,220	395,420
Manufacturing	145	2,130	33,325
Retail trade	125	1,265	46,285
Health care and social assistance	90	1,485	49,660
Transportation and warehousing	70	640	19,240
Construction	65	1,230	29,340
Agriculture, forestry, fishing and hunting	65	1,785	15,480
Professional, scientific and technical services	55	300	16,205
Public administration	50	915	39,515

Total	Saint David Parish	Charlotte County	New Brunswick
Educational services	35	575	27,045
Other services	35	645	17,895
Accommodation and food services	20	680	23,805
Administrative and support, waste management and remediation services	15	455	19,025

Source: Statistics Canada 2006

6.2 Land Use and Cultural Resources

The Oak Bay Hatchery was a pre-existing hatchery prior to 1989 when it was purchased by Cooke Aquaculture (then called Kelly Cove Salmon). Land use surrounding the Project site consists of resource/residential and commercial with Oak Bay bordering the eastern property boundary. Table 8.2X is a list of the adjacent landowners and their corresponding parcel identification numbers as accessed from the Service New Brunswick web site.

Table 6.5: Adjacent Property Owners

Property Owner	PID Number	Direction from Project Site
[redacted]	[redacted]	West
[redacted]	[redacted]	South
[redacted]	[redacted]	North

Source: Service New Brunswick 2015

The closest aboriginal community is the Oromocto First Nation located along the Wel-a-mook-took River, approximately 91 km northeast of the Project site.

6.3 Recreation and Tourism

Charlotte County includes popular tourist towns, such as St. Andrews and St. Stephen, as well as Campobello Island, which is located in the Bay of Fundy. St. Stephen, located 6.5 km southwest of the Project site, is known as *Canada's Chocolate Town*, home of Ganong Bros Ltd., Canada's oldest candy company. This community is also one of the busiest Canadian/U.S. border crossings in the province. St. Andrew's, located 19 km southeast of the site, is a well-known tourist hub which maintains its status as a National Historic District, located on the scenic Passamaquoddy Bay. An array of activities are available such as seaside signature golf, whale-watching, kayaking, boat tours, and scuba diving. Art galleries, museums, interactive displays, and the Kingsbrae Garden, an 11 ha horticultural masterpiece, are also popular tourist attractions.

Existing outdoor recreation in the vicinity of the Project site includes snowmobiling, ATV use, hunting, fishing, beaches, camping, and hiking. The Oak Bay Provincial Park and Campground is

located 1.4 km north, northeast of the site. This privately managed 33.5 acres park is nestled around the Bay of Fundy and offers serviced and unserviced camping sites, a canteen, picnic area, and a sandy beach.

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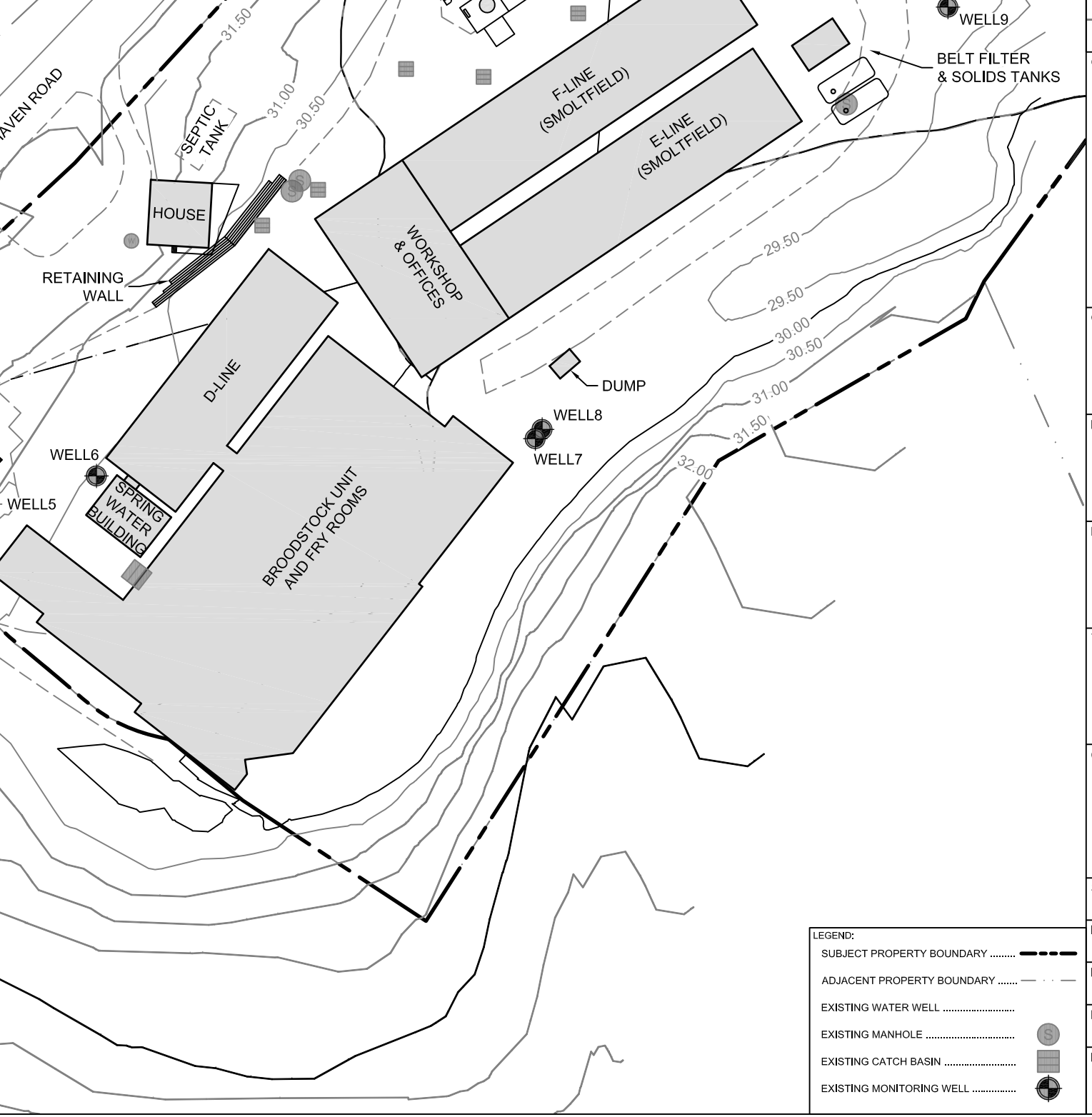
APPENDIX A
DRAWINGS



GENERAL NOTES:

0 5 10 15 20 25 metres

Scale 1:750

CLIENT:

KELLY COVE SALMON LTD.

PROJECT:

OAK BAY HATCHERY

LOCATION:

OAK HAVEN ROAD
BENSON CORNER, NEW BRUNSWICK

TITLE:

SITE PLAN

CONSULTANT:

Strum CONSULTING
Engineering * Surveying * Environmental
Bedford * Antigonish * Moncton * Deer Lake

SCALE:
H: 1:750 V: N/A

DATE:	DRAWN:
MARCH 2015	H. SERHAN

DESIGNED:	CHECKED:	APPR'D:
N/A	N. STRUM	N. STRUM

PROJECT No.:
15-5278

DRAWING No.:
1

LEGEND:
- SUBJECT PROPERTY BOUNDARY .....
- ADJACENT PROPERTY BOUNDARY .....
- EXISTING WATER WELL .....
- EXISTING MANHOLE ..... S
- EXISTING CATCH BASIN .....
- EXISTING MONITORING WELL .....


N
ROUTE 760 Highway
WAWEIG RIVER Road
ROUTE 1 SCALE SITE None
Highway
Gallop Stream
LILY HILL Road
Oak Bay
COOKS Lane
CLIFFSIDE Lane
STRANG Road
Cottrell
Oak Bay
BACK Road
ROUTE 1 Highway West
Oak Bay Provincial Park
GILMAN Lane
Spoon Island
SHORE Road
FARM Road
FOREST Lane
Benson Corner
Project Site
BENSON Road
ROUTE 170 Highway
ST DAVID RIDGE Road
MOODY Lane
Oak Haven
Oak B
THOMPSON Lane
YOUNG Lane
HOPPS Lane
Campbell Point
OAK HAVEN Road
Pagans Cove

APPENDIX B
WASTE MANAGEMENT PLAN

Waste Management Plan

October 24

2013

The following document is the WMP for Oak Bay Hatchery. It includes waste definitions, handling/storage and removal as well as service provider contacts. This document should be updated on an as needed basis.

Oak Bay Hatchery

Waste Management Plan
Oak Bay Hatchery

Waste is generally defined as ***damaged, defective, or excess material produced through normal operations of the facility.*** A waste is considered uncontrolled should it leave the facility in a manner not covered in this WMP.

Types of waste that may be generated from a facility and potential sources are described as follows:

- **Operational Debris** including feed bags, pallets, rope, tanks, and litter and other inorganic materials that may come from daily operation of the facility.
- **Hazardous Wastes** could potentially include petroleum products, paints, or other materials used at the facility.
- **Human Waste** includes metabolic waste products from staff and visitors to the facility.
- **Routine Mortalities** include dead and moribund stock removed from the tanks.
- **Major Stock Loss** includes mortalities greater than that expected through normal operations.
- **Feed and Feces** includes fish feed that was not consumed by the stock and spills from automatic or manual feeding systems, as well as feces produced by the stock.
- **Egg Take Wastes** include materials produced by on-site egg-take practices such as stripping and bleeding.

1.1 Operational Debris

Generation will be limited by daily inspection for materials that may be discharged from the facility, and by containing these materials for disposal at a suitable facility.

- Debris will be stored in marked, securely covered containers that are readily accessible by site staff and visitors.
- Items such as pop cans and other recyclable materials are sent for recycling where such a facility is available.
- Large materials (pallets, for example) will be sent to Lake Utopia for reuse/recycling.
- Feed bags will be collected and stored as they are emptied and taken to Fundy Plastics for recycling.
- All contained operational debris described above will be transported as needed to an approved solid waste landfill or recycling facility.
- Staff will be encouraged to participate in regional inspections and clean-ups.
- Any construction related materials or waste created during regular facility maintenance or construction is collected and stored until proper disposal/recycling can be arranged.
- Only facility property will be used for short or long-term storage of operation equipment and/or debris. Shorelines and other off-facility lands, either public or private, must not be used for short or long-term storage of equipment, gear, and/or other operational debris unless they have been approved by the land owner and/or the regulators for this purpose.

1.2 Hazardous Waste

Hazardous materials such as cleaning agents, fuels, paints and oils will only be brought to the facility if they are required for use.

- Any items that may be considered hazardous waste will be transported in appropriate leak proof containers to an approved facility for recycling or disposal.
- Where applicable, chemical and hazardous materials are disposed of as per the manufacturer's instructions on the product labels.
- Used petroleum products associated with normal equipment maintenance will be stored and transported in sealed containers to the nearest waste oil recycling facility.
- Waste oil obtained from the forklift is managed by Liftow.
- Any accidental release of a hazardous substance or contaminant in an amount to be of concern to human health or safety or environmental harm will be reported immediately to the Saint John Regional Office of DENV and to the Canada Coast Guard (506-658-2558, 800-565-1633).

1.3 Human Waste

The intended policy is that no human waste will be discharged directly from the facility. The facility owns and maintains a septic system serviced by A One Pumping Service with an accompanying weeping field.

1.4 Routine Mortalities

Generation of this waste type will be minimized by maintaining optimal husbandry and health conditions for the stock.

- Dead and moribund fish will be removed from the tanks once per day. The intention will be to remove mortalities as frequently as possible such that the quantity of the waste per week is minimized.
- All mortalities will be incinerated daily.
- At no time will dead or moribund fish be released into a watershed.

1.5 Major Stock Loss

Major stock loss includes mortalities greater than that expected through normal operations, and could occur through equipment failure, adverse environmental conditions (low oxygen, low temperature), or fish health causes. Major stock loss is not a normal operating condition. However, it is an operational possibility that warrants some pre-planning and preparation.

- Major stock loss mortalities will be removed from tanks.
- Containers not designated for normal mortalities may be used for collection of major stock loss mortalities, provided they are leak proof.
- Mortalities will be disposed of at Cardwell Composting Facility in Penobsquis, New Brunswick. Other avenues may be used in the event that Cardwell is unable to handle the excess fish, this includes other compost facilities, rendering plants, and mink farms in the province of NB.

1.6 Feed and Feces

Feces waste generation will be limited by maintaining optimal stock husbandry and health conditions at the facility, and by feeding the fish according to best available techniques. Waste feed generation will be limited by following clear delivery, storage, and feeding practices.

- Feed will be stored at the facility in covered secure areas including hoppers, bins or buildings. Bags of feed will not be left outside and unattended at the facility.
- Feed will only be brought to the facility on an as-needed basis. Maximum storage capacity is 10 tonnes.
- Facility staff and feed delivery personnel will take all reasonable and safe precautions to reduce spills during feeding, feed spills will be cleaned up as they occur.
- Amounts of feed given to stock will be based on biomass and environmental conditions present. Feeding will be reduced or stopped if conditions such as low temperature, low oxygen, or fish health events suggest that utilization of feed by the stock will be affected.
- Feeding of stock will be monitored by trained facility staff. Feeding rates will be reduced or stopped as staff observe changes in fish activity indicating a reduction in appetite and/or if uneaten feed is sitting on the bottom of the tank.
- Water quality requirements will be adhered to as per the Approval to Operate.

1.7 Egg Take Wastes

Egg takes will be conducted to ensure the highest fish quality and fish welfare standards.

- Fish carcasses as a result of spawning activities are sent to True North for disposal at Cardwell Farms.
- Scalpel blades will be placed into a sharps container and removed once full via Zee Medical.

1.8 Waste Management Services Contact

A One Pumping Service Ltd. (Human Waste & Fish Waste)
30 Old Bay Road
St Stephen, New Brunswick
E3L 3X1
506-466-4407

Cardwell Farms Composting Products Inc (Composting)
12315 Route 114
Penobsquis, New Brunswick
E4G 2X9
506-433-4078

Fundy Plastics (Plastic Recycling)
5284 Route 1
Pennfield, NB
E5H 2C4
506-755-2135

Fero Waste & Recycling Inc (Operational Debris and Recycling)
1300 Berry Mills Road
Moncton, New Brunswick
E1E 4R8
506-855-FERO(3376)

Liftow Limited (Waste Oil)
275 Baig Blvd.
Moncton, New Brunswick
E1E 1E1
506-853-5083

Zee Medical Canada (Sharps)
Contact: Albert Bodechon
Accident Management & Safety Advisor
Fredericton, New Brunswick
800-661-1491, Ext. 6703
Cell: 506-471-9056
Canada@zeemedicalinc.com

APPENDIX C
COMPLETE LIST OF
SPECIES OF CONSERVATION INTEREST

Table 1: Species of Conservation Interest within 100km of the Project Site (ACCDC, 2015)

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Fish						
American Eel	*Anguilla rostrata*	Not Listed	Threatened	Threatened	Secure	S5
Atlantic Salmon	*Salmo salar*	Not Listed	Not Listed	Not Listed	May Be At Risk	S2
Atlantic Salmon - Inner Bay of Fundy pop.	*Salmo salar pop. 1*	Endangered	Endangered	Endangered	May Be At Risk	S2
Atlantic Sturgeon	*Acipenser oxyrinchus*	Not Listed	Threatened	Threatened	Secure	S3
Brook Floater	*Alasmidonta varicosa*	Not Listed	Special Concern	Special Concern	Sensitive	S1S2
Lake Trout	*Salvelinus namaycush*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Lake Utopia Smelt large-bodied pop.	*Osmerus mordax pop. 2*	Not Listed	Threatened	Threatened	Not Listed	Not Listed
Lake Whitefish	*Coregonus clupeaformis*	Not Listed	Not Listed	Not Listed	Secure	S3
Redbreast Sunfish	*Lepomis auritus*	Special Concern	Not Listed	Data Deficient	Secure	S3?
Round Whitefish	*Prosopium cylindraceum*	Not Listed	Not Listed	Not Listed	Secure	S2
Shortnose Sturgeon	*Acipenser brevirostrum*	Special Concern	Special Concern	Special Concern	Sensitive	S2
Striped Bass	*Morone saxatilis*	Not Listed	Not Listed	Endangered	May Be At Risk	S2
Yellow Lampmussel	*Lampsilis cariosa*	Special Concern	Special Concern	Special Concern	Sensitive	S2
Marine Life						
Atlantic White-sided Dolphin	Lagenorhynchus acutus	Endangered	Not Listed	Not At Risk	No Rank	S3S4
Fin Whale - Atlantic pop.	Balaenoptera physalus	Special Concern	Special Concern	Special Concern	No Rank	S2S3
Harbour Porpoise - Northwest Atlantic pop.	Phocoena phocoena (NW Atlantic pop.)	Threatened	Not Listed	Special Concern	No Rank	S4
Humpback Whale (NW Atlantic pop.)	Megaptera novaeangliae	Special Concern	Not Listed	Not At Risk	No Rank	S3

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Leatherback Sea Turtle - Atlantic pop.	Dermochelys coriacea (Atlantic pop.)	Endangered	Endangered	Endangered	At Risk	S1S2 N
Long-finned Pilot Whale	Globicephala melas	Not Listed	Not Listed	Not At Risk	No Rank	S2S3
North Atlantic Right Whale	Eubalaena glacialis	Endangered	Endangered	Endangered	No Rank	S1
Mammals						
Big Brown Bat	*Eptesicus fuscus*	Not Listed	Not Listed	Not Listed	Sensitive	S2?
Canadian Lynx	*Lynx canadensis*	Not Listed	Endangered	Not At Risk	At Risk	S1
Cougar - Eastern pop.	*Puma concolor pop. 1*	Not Listed	Endangered	Data Deficient	Undeter-mined	SU,S H
Eastern Pipistrelle/ Tri-coloured bat	*Perimyotis subflavus*	Endangered	Endangered	Endangered	At Risk	S1
Eastern Red Bat	*Lasiurus borealis*	Not Listed	Not Listed	Not Listed	Undeter-mined	S2?
Gray Wolf	*Canis lupus*	Not Listed	Extirpated	Not At Risk	Extirpated	SX
Hoary Bat	*Lasiurus cinereus*	Not Listed	Not Listed	Not Listed	Undeter-mined	S2?
Little Brown Myotis	*Myotis lucifugus*	Endangered	Not Listed	Endangered	Not Listed	Not Listed
Long-tailed Shrew	*Sorex dispar*	Special Concern	Not Listed	Not At Risk	Sensitive	S1
Maritime Shrew	*Sorex maritimensis*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Long-eared Myotis	*Myotis septentrionalis*	Endangered	Endangered	Endangered	At Risk	S1
Silver-haired Bat	*Lasionycteris noctivagans*	Not Listed	Not Listed	Not Listed	Undeter-mined	S1?
Southern Bog Lemming	*Synaptomys cooperi*	Not Listed	Not Listed	Not Listed	Secure	S3
Woodland Caribou (Atlantic-Gaspésie pop.)	*Rangifer tarandus pop. 2*	Endangered	Extirpated	Endangered	Extirpated	SX
Bird						
American Coot	*Fulica americana*	Not Listed	Not Listed	Not At Risk	Sensitive	S2B
American Golden-Plover	*Pluvialis dominica*	Not Listed	Not Listed	Not Listed	Sensitive	S3M
American Three-toed Woodpecker	*Picoides dorsalis*	Not Listed	Not Listed	Not Listed	Sensitive	S3?

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
American Wigeon	*Anas americana*	Not Listed	Not Listed	Not Listed	Secure	S3B
Arctic Tern	*Sterna paradisaea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1B
Atlantic Puffin	*Fratercula arctica*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2B
Bald Eagle	*Haliaeetus leucocephalus*	Not Listed	Endangered	Not At Risk	At Risk	S3B
Bank Swallow	*Riparia riparia*	Not Listed	Not Listed	Threatened	Sensitive	S3B
Barn Swallow	*Hirundo rustica*	Not Listed	Threatened	Threatened	Sensitive	S3B
Bicknell's Thrush	*Catharus bicknelli*	Special Concern	Threatened	Threatened	At Risk	S2S3B
Black Guillemot	*Cepphus grylle*	Not Listed	Not Listed	Not Listed	Secure	S3
Black Scoter	*Melanitta nigra*	Not Listed	Not Listed	Not Listed	Sensitive	S3M, S2S3N
Black Tern	*Chlidonias niger*	Not Listed	Not Listed	Not At Risk	Sensitive	S2B
Black-crowned Night-heron	*Nycticorax nycticorax*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2B
Black-headed Gull	*Chroicocephalus ridibundus*	Not Listed	Not Listed	Not Listed	Sensitive	S2M, S1N
Black-legged Kittiwake	*Rissa tridactyla*	Not Listed	Not Listed	Not Listed	Secure	S1B, S4N
Bobolink	*Dolichonyx oryzivorus*	Not Listed	Threatened	Threatened	Sensitive	S3S4B
Boreal Owl	*Aegolius funereus*	Not Listed	Not Listed	Not At Risk	May Be at Risk	S1S2B
Brant	*Branta bernicla*	Not Listed	Not Listed	Not Listed	Secure	S2S3M,S2S3N
Brown Thrasher	*Toxostoma rufum*	Not Listed	Not Listed	Not Listed	Sensitive	S2B
Brown-headed Cowbird	*Molothrus ater*	Not Listed	Not Listed	Not Listed	May Be at Risk	S3B
Buff-breasted Sandpiper	*Tryngites subruficollis*	Not Listed	Not Listed	Special Concern	Accidental	SNA
Bufflehead	*Bucephala albeola*	Not Listed	Not Listed	Not Listed	Sensitive	S3N

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Canada Warbler	*Wilsonia canadensis*	Threatened	Threatened	Threatened	At Risk	S3S4B
Chimney Swift	*Chaetura pelagica*	Threatened	Threatened	Threatened	At Risk	S2S3B
Cliff Swallow	*Petrochelidon pyrrhonota*	Not Listed	Not Listed	Not Listed	Sensitive	S3S4B
Common Moorhen	*Gallinula chloropus*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2B
Common Murre	*Uria aalge*	Not Listed	Not Listed	Not Listed	Secure	S1B, S3N
Common Nighthawk	*Chordeiles minor*	Threatened	Threatened	Threatened	At Risk	S3B
Common Tern	*Sterna hirundo*	Not Listed	Not Listed	Not At Risk	Sensitive	S3B
Cooper's Hawk	*Accipiter cooperii*	Not Listed	Not Listed	Not At Risk	May Be at Risk	S1S2B
Eastern Kingbird	*Tyrannus tyrannus*	Not Listed	Not Listed	Not Listed	Sensitive	S3S4B
Eastern Meadowlark	*Sturnella magna*	Not Listed	Threatened	Threatened	May Be at Risk	S1S2B
Eastern Wood-Pewee	*Contopus virens*	Not Listed	Special Concern	Special Concern	Secure	S4B
Evening Grosbeak	*Coccothraustes vespertinus*	Not Listed	Not Listed	Not Listed	Sensitive	S3S4B,S4S5N
Gadwall	*Anas strepera*	Not Listed	Not Listed	Not Listed	Secure	S2B
Golden-winged Warbler	*Vermivora chrysoptera*	Threatened	Not Listed	Threatened	Accidental	SNA
Great Crested Flycatcher	*Myiarchus crinitus*	Not Listed	Not Listed	Not Listed	Sensitive	S3B
Greater Scaup	*Aythya marila*	Not Listed	Not Listed	Not Listed	Secure	S1B, S2N
Green Heron	*Butorides virescens*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2B
Harlequin Duck - Eastern pop.	*Histrionicus histrionicus pop. 1*	Special Concern	Endangered	Special Concern	At Risk	S1B, S1N
Horned Grebe	*Podiceps auritus*	Not Listed	Special Concern	Not Listed	Secure	S4M, S4N

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Horned Lark	*Eremophila alpestris*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2B
House Wren	*Troglodytes aedon*	Not Listed	Not Listed	Not Listed	N/A	S1B
Indigo Bunting	*Passerina cyanea*	Not Listed	Not Listed	Not Listed	Secure	S3B
Killdeer	*Charadrius vociferus*	Not Listed	Not Listed	Not Listed	Sensitive	S3B
King Eider	*Somateria spectabilis*	Not Listed	Not Listed	Not Listed	Secure	S2N
Laughing Gull	*Leucophaeus atricilla*	Not Listed	Not Listed	Not Listed	Sensitive	S1B
Leach's Storm-Petrel	*Oceanodroma leucorhoa*	Not Listed	Not Listed	Not Listed	Sensitive	S2B
Least Bittern	*Ixobrychus exilis*	Threatened	Threatened	Threatened	At Risk	S1S2B
Long-eared Owl	*Asio otus*	Not Listed	Not Listed	Not Listed	Undetermined	S2S3
Marsh Wren	*Cistothorus palustris*	Not Listed	Not Listed	Not Listed	Sensitive	S2B
Northern Bobwhite	*Colinus virginianus*	Endangered	Not Listed	Endangered	Not Listed	Not Listed
Northern Gannet	*Morus bassanus*	Not Listed	Not Listed	Not Listed	Secure	SHB, S5M, S5N
Northern Mockingbird	*Mimus polyglottos*	Not Listed	Not Listed	Not Listed	Sensitive	S3B
Northern Pintail	*Anas acuta*	Not Listed	Not Listed	Not Listed	Sensitive	S3B
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2B
Northern Shoveler	*Anas clypeata*	Not Listed	Not Listed	Not Listed	Secure	S2B
Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Threatened	Threatened	At Risk	S3S4B
Peregrine Falcon - anatum/ tundrius	*Falco peregrinus pop. 1*	Special Concern	Endangered	Special Concern	At Risk	S1B
Pine Grosbeak	*Pinicola enucleator*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3B,S4S5N
Piping Plover melodus ssp	*Charadrius melodus melodus*	Endangered	Endangered	Endangered	At Risk	S2B
Prothonotary Warbler	*Protonotaria citrea*	Endangered	Not Listed	Endangered	Accidental	SNA

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Purple Martin	*Progne subis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2B
Purple Sandpiper	*Calidris maritima*	Not Listed	Not Listed	Not Listed	Secure	S3M, S3N
Razorbill	*Alca torda*	Not Listed	Not Listed	Not Listed	Secure	S1B, S3N
Red Crossbill	*Loxia curvirostra*	Not Listed	Not Listed	Not Listed	Secure	S3
Red Knot rufa ssp	*Calidris canutus rufa*	Not Listed	Endangered	Endangered	At Risk	S3M
Red Phalarope	*Phalaropus fulicarius*	Not Listed	Not Listed	Not Listed	Sensitive	S3M
Red-breasted Merganser	*Mergus serrator*	Not Listed	Not Listed	Not Listed	Secure	S3B, S4S5N
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Threatened	Not Listed	Threatened	Accidental	SNA
Red-necked Grebe	*Podiceps grisegena*	Not Listed	Not Listed	Not At Risk	Sensitive	S3M, S2N
Red-necked Phalarope	*Phalaropus lobatus*	Not Listed	Not Listed	Special Concern	Sensitive	S3M
Red-shouldered Hawk	*Buteo lineatus*	Special Concern	Not Listed	Not At Risk	May Be at Risk	S2B
Ring-billed Gull	*Larus delawarensis*	Not Listed	Not Listed	Not Listed	Secure	S3B
Roseate Tern	*Sterna dougallii*	Endangered	Endangered	Endangered	At Risk	S1B
Ruddy Duck	*Oxyura jamaicensis*	Not Listed	Not Listed	Not Listed	Secure	S1B, S4N
Rusty Blackbird	*Euphagus carolinus*	Special Concern	Special Concern	Special Concern	May Be at Risk	S3B
Scarlet Tanager	*Piranga olivacea*	Not Listed	Not Listed	Not Listed	Secure	S3S4B
Short-eared Owl	*Asio flammeus*	Special Concern	Special Concern	Special Concern	Sensitive	S3B
Solitary Sandpiper	*Tringa solitaria*	Not Listed	Not Listed	Not Listed	Secure	S2B, S5M
Turkey Vulture	*Cathartes aura*	Not Listed	Not Listed	Not Listed	Secure	S3B
Upland Sandpiper	*Bartramia longicauda*	Not Listed	Not Listed	Not Listed	Sensitive	S1B

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Vesper Sparrow	*Pooecetes gramineus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2B
Virginia Rail	*Rallus limicola*	Not Listed	Not Listed	Not Listed	Sensitive	S3B
Whip-Poor-Will	*Caprimulgus vociferus*	Threatened	Threatened	Threatened	At Risk	S2B
Willet	*Tringa semipalmata*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3B
Willow Flycatcher	*Empidonax traillii*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2B
Wilson's Phalarope	*Phalaropus tricolor*	Not Listed	Not Listed	Not Listed	Sensitive	S1B
Wood Thrush	*Hylocichla mustelina*	Not Listed	Threatened	Threatened	May Be at Risk	S1S2B
Vacular Plants						
a Pussytoes	*Antennaria parlinii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Acadian Quillwort	*Isoetes acadiensis*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Alpine Cliff Fern	*Woodsia alpina*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Alpine Milk-Vetch	*Astragalus alpinus var. brunetianus*	Not Listed	Not Listed	Not Listed	Secure	S3
American False Pennyroyal	*Hedeoma pulegioides*	Not Listed	Not Listed	Not Listed	Secure	S2
American Lopseed	*Phryma leptostachya*	Not Listed	Not Listed	Not Listed	Sensitive	S2
American Shoreweed	*Littorella uniflora*	Not Listed	Not Listed	Not Listed	Secure	S3
American Waterwort	*Elatine americana*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Andean Water Milfoil	*Myriophyllum quitense*	Not Listed	Not Listed	Not Listed	Secure	S2S3
Anticosti Aster	*Symphyotrichum anticostense*	Threatened	Endangered	Threatened	At Risk	S1S3
Appalachian Fir-Clubmoss	*Huperzia appalachiana*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Appalachian Polypody	*Polypodium appalachianum*	Not Listed	Not Listed	Not Listed	Secure	S3
Arching Dewberry	*Rubus recurvicaulis*	Not Listed	Not Listed	Not Listed	Secure	S2?

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Arrow-Leaved Violet	*Viola sagittata var. ovata*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Atlantic Manna Grass	*Glyceria obtusa*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Auricled Twayblade	*Listera auriculata*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Awned Flatsedge	*Cyperus squarrosus*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Barren Strawberry	*Waldsteinia fragarioides*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Bayberry Willow	*Salix myricoides*	Not Listed	Not Listed	Not Listed	Sensitive	S2?
Bicknell's Crane's-bill	*Geranium bicknellii*	Not Listed	Not Listed	Not Listed	Secure	S3
Black Raspberry	*Rubus occidentalis*	Not Listed	Not Listed	Not Listed	Secure	S3
Black Willow	*Salix nigra*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Blood Milkwort	*Polygala sanguinea*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Blunt-leaved Bedstraw	*Galium obtusum*	Not Listed	Not Listed	Not Listed	Secure	S2?
Blunt-leaved Pondweed	*Potamogeton obtusifolius*	Not Listed	Not Listed	Not Listed	Secure	S3
Blunt-lobed Moonwort	*Botrychium oneidense*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Bog Birch	*Betula pumila*	Not Listed	Not Listed	Not Listed	Secure	S3
Bog Willow	*Salix pedicellaris*	Not Listed	Not Listed	Not Listed	Secure	S3
Bog Yellow-eyed-grass	*Xyris difformis*	Not Listed	Not Listed	Not Listed	Undetermined	S1
Boreal Aster	*Symphyotrichum boreale*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Branched Bartonia	*Bartonia paniculata*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Branched Bartonia	*Bartonia paniculata ssp. iodandra*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Brewer's Whitlow-grass	*Draba breweri var. cana*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Broad-Glumed Brome	*Bromus latiglumis*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Brook Lobelia	*Lobelia kalmii*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Broom Crowberry	*Corema conradii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Brown Beakrush	*Rhynchospora fusca*	Not Listed	Not Listed	Not Listed	Secure	S3
Bur Oak	*Quercus macrocarpa*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Butternut	*Juglans cinerea*	Endangered	Endangered	Endangered	At Risk	S1
Buttonbush Dodder	*Cuscuta cephalanthi*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1?
Calypso	*Calypso bulbosa var. americana*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Canada Garlic	*Allium canadense*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Canada Germander	*Teucrium canadense*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Canada Lousewort	*Pedicularis canadensis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Canada Rice Grass	*Piptatherum canadense*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Canada Serviceberry	*Amelanchier canadensis*	Not Listed	Not Listed	Not Listed	Secure	S3
Canada Wild Rye	*Elymus canadensis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Cardinal Flower	*Lobelia cardinalis*	Not Listed	Not Listed	Not Listed	Secure	S3
Carey's Smartweed	*Polygonum careyi*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Case's Ladies'-Tresses	*Spiranthes casei*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Climbing False Buckwheat	*Polygonum scandens*	Not Listed	Not Listed	Not Listed	Secure	S3
Clinton's Clubrush	*Trichophorum clintonii*	Not Listed	Not Listed	Not Listed	Secure	S3
Cloudberry	*Rubus chamaemorus*	Not Listed	Not Listed	Not Listed	Secure	S3
Clustered Sanicle	*Sanicula odorata*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Coastal Sedge	*Carex exilis*	Not Listed	Not Listed	Not Listed	Secure	S3
Columbian Watermeal	*Wolffia columbiana*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1?
Comb-leaved Mermaidweed	*Proserpinaca pectinata*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Common Buttonbush	*Cephalanthus occidentalis*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Common Hop	*Humulus lupulus var. lupuloides*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Creeping Alkali Grass	*Puccinellia phryganodes*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Creeping Sedge	*Carex chordorrhiza*	Not Listed	Not Listed	Not Listed	Secure	S3
Cursed Buttercup	*Ranunculus sceleratus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Cut-leaved Anemone	*Anemone multifida*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Cut-leaved Moonwort	*Botrychium dissectum*	Not Listed	Not Listed	Not Listed	Secure	S3
Cut-leaved Toothwort	*Cardamine concatenata*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Disguised St John's-wort	*Hypericum dissimulatum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Ditch Stonecrop	*Penthorum sedoides*	Not Listed	Not Listed	Not Listed	Secure	S3
Dotted Smartweed	*Polygonum punctatum*	Not Listed	Not Listed	Not Listed	Secure	S3

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Dotted Smartweed	*Polygonum punctatum var. confertiflorum*	Not Listed	Not Listed	Not Listed	Secure	S3
Downy Rattlesnake-Plantain	*Goodyera pubescens*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Downy Willowherb	*Epilobium strictum*	Not Listed	Not Listed	Not Listed	Secure	S3
Drummond's Rockcress	*Arabis drummondii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Dwarf Clearweed	*Pilea pumila*	Not Listed	Not Listed	Not Listed	Secure	S3
Dwarf Ginseng	*Panax trifolius*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Early Saxifrage	*Saxifraga virginiensis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2
Eastern Leatherwood	*Dirca palustris*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Eastern Skunk Cabbage	*Symplocarpus foetidus*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Eastern White Water-Crowfoot	*Ranunculus longirostris*	Not Listed	Not Listed	Not Listed	Undetermined	S2
Elegant Milk-vetch	*Astragalus eucosmus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
English Sundew	*Drosera anglica*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Estuarine Sedge	*Carex vacillans*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Estuary Sedge	*Carex recta*	Not Listed	Not Listed	Not Listed	Secure	S3
Farwell's Water Milfoil	*Myriophyllum farwellii*	Not Listed	Not Listed	Not Listed	Secure	S3
Fen Grass-of-Parnassus	*Parnassia glauca*	Not Listed	Not Listed	Not Listed	Secure	S3
Few-flowered Spikerush	*Eleocharis quinqueflora*	Not Listed	Not Listed	Not Listed	Secure	S3
Field Locoweed	*Oxytropis campestris var. johannensis*	Not Listed	Not Listed	Not Listed	Sensitive	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Field Sedge	*Carex conoidea*	Not Listed	Not Listed	Not Listed	Secure	S3
Field Wormwood	*Artemisia campestris*	Not Listed	Not Listed	Not Listed	Secure	S3
Field Wormwood	*Artemisia campestris ssp. caudata*	Not Listed	Not Listed	Not Listed	Secure	S3
Flattened Oat Grass	*Danthonia compressa*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Fleshy Hawthorn	*Crataegus succulenta*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Forked Panic Grass	*Dichanthelium dichotomum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Fragrant Green Orchid	*Platanthera huronensis*	Not Listed	Not Listed	Not Listed	5 Undetermined	S2?
Fragrant Wood Fern	*Dryopteris fragrans var. remotiuscula*	Not Listed	Not Listed	Not Listed	Secure	S3
Frankton's Saltbush	*Atriplex franktonii*	Not Listed	Not Listed	Not Listed	Secure	S2
Fries' Pondweed	*Potamogeton friesii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Fringed Milkwort	*Polygala paucifolia*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Garber's Sedge	*Carex garberi*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Gasp├⌐ Arrowgrass	*Triglochin gaspensis*	Not Listed	Not Listed	Not Listed	Secure	S3
Glaucous Rattlesnakeroot	*Prenanthes racemosa*	Not Listed	Not Listed	Not Listed	Secure	S3
Gmelin's Water Buttercup	*Ranunculus gmelinii*	Not Listed	Not Listed	Not Listed	Secure	S3
Golden Hedge-Hyssop	*Gratiola aurea*	Not Listed	Not Listed	Not Listed	Sensitive	S1
Goldie's Woodfern	*Dryopteris goldiana*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Great Duckweed	*Spirodela polyrrhiza*	Not Listed	Not Listed	Not Listed	Secure	S3S4

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Green Spleenwort	*Asplenium trichomanes-ramosum*	Not Listed	Not Listed	Not Listed	Secure	S3
Greene's Rush	*Juncus greenei*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Greenland Stitchwort	*Minuartia groenlandica*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Ground-Fir	*Lycopodium sabinifolium*	Not Listed	Not Listed	Not Listed	Secure	S3
Hairlike Sedge	*Carex capillaris*	Not Listed	Not Listed	Not Listed	Secure	S3
Halberd-leaved Tearthumb	*Polygonum arifolium*	Not Listed	Not Listed	Not Listed	Secure	S3
Hayden's Sedge	*Carex haydenii*	Not Listed	Not Listed	Not Listed	Secure	S3
Herb Robert	*Geranium robertianum*	Not Listed	Not Listed	Not Listed	Secure	S2S3
Highbush Blueberry	*Vaccinium corymbosum*	Not Listed	Not Listed	Not Listed	Sensitive	S1
Hooked Agrimony	*Agrimonia gryposepala*	Not Listed	Not Listed	Not Listed	Secure	S3
Hooked Violet	*Viola adunca*	Not Listed	Not Listed	Not Listed	Secure	S3
Hop Sedge	*Carex lupulina*	Not Listed	Not Listed	Not Listed	Secure	S3
Horned Pondweed	*Zannichellia palustris*	Not Listed	Not Listed	Not Listed	Secure	S3
Horned Sea-blite	*Suaeda calceoliformis*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Hornemann's Willowherb	*Epilobium hornemannii*	Not Listed	Not Listed	Not Listed	Secure	S3
Horn-leaved Riverweed	*Podostemum ceratophyllum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Humped Bladderwort	*Utricularia gibba*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Hyssop-leaved Fleabane	*Erigeron hyssopifolius*	Not Listed	Not Listed	Not Listed	Secure	S3
Indian Wild Rice	*Zizania aquatica var. aquatica*	Not Listed	Not Listed	Not Listed	Undetermined	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Inflated Narrow-leaved Sedge	*Carex grisea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Inverted Bladderwort	*Utricularia resupinata*	Not Listed	Not Listed	Not Listed	Secure	S3?
Jones' Hawthorn	*Crataegus jonesiae*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Kalm's Hawkweed	*Hieracium kalmii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Kalm's Hawkweed	*Hieracium kalmii var. kalmii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Kalm's Hawkweed	*Hieracium kalmii var. fasciculatum*	Not Listed	Not Listed	Not Listed	Undetermined	S1?
Knotted Pearlwort	*Sagina nodosa*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Knotted Pearlwort	*Sagina nodosa ssp. borealis*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Labrador Bedstraw	*Galium labradoricum*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Lake Huron Tansy	*Tanacetum bipinnatum ssp. huronense*	Not Listed	Not Listed	Not Listed	Secure	S3
Lance-Leaf Grape-Fern	*Botrychium lanceolatum var. angustisegmentum*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Lance-leaved Figwort	*Scrophularia lanceolata*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Large Purple Fringed Orchid	*Platanthera grandiflora*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Large Round-Leaved Orchid	*Platanthera macrophylla*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Large Tick-Trefoil	*Desmodium glutinosum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Large Toothwort	*Cardamine maxima*	Not Listed	Not Listed	Not Listed	Secure	S3
Large-Fruited Sanicle	*Sanicula trifoliata*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Least Moonwort	*Botrychium simplex*	Not Listed	Not Listed	Not Listed	Secure	S3

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Lesser Brown Sedge	*Carex adusta*	Not Listed	Not Listed	Not Listed	Secure	S2S3
Lesser Pyrola	*Pyrola minor*	Not Listed	Not Listed	Not Listed	Secure	S3
Limestone Meadow Sedge	*Carex granularis*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Limestone Swamp Bedstraw	*Galium brevipes*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Little Bluestem	*Schizachyrium scoparium*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Little Curlygrass Fern	*Schizaea pusilla*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Little Floating Bladderwort	*Utricularia radiata*	Not Listed	Not Listed	Not Listed	Secure	S3
Livid Sedge	*Carex livida var. radicaulis*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Loesel's Twayblade	*Liparis loeselii*	Not Listed	Not Listed	Not Listed	Secure	S3
Longbeak Sedge	*Carex sprengelii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Long-bracted Frog Orchid	*Coeloglossum viride var. virescens*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Long-leaved Pondweed	*Potamogeton nodosus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Long-leaved Starwort	*Stellaria longifolia*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Low Flatsedge	*Cyperus diandrus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Low Spikemoss	*Selaginella selaginoides*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Low Water Milfoil	*Myriophyllum humile*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Lowland Yellow Loosestrife	*Lysimachia hybrida*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Macoun's Cudweed	*Pseudognaphalium macounii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Maidenhair Spleenwort	*Asplenium trichomanes*	Not Listed	Not Listed	Not Listed	Sensitive	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Maple-leaved Goosefoot	*Chenopodium simplex*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Maple-leaved Viburnum	*Viburnum acerifolium*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Marsh Felwort	*Lomatogonium rotatum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Marsh Horsetail	*Equisetum palustre*	Not Listed	Not Listed	Not Listed	Secure	S3
Marsh Mermaidweed	*Proserpinaca palustris var. crebra*	Not Listed	Not Listed	Not Listed	Sensitive	S2?
Mat Muhly	*Muhlenbergia richardsonis*	Not Listed	Not Listed	Not Listed	Secure	S3
Matted Spikerush	*Eleocharis intermedia*	Not Listed	Not Listed	Not Listed	Secure	S3
Merritt Fernald's Sedge	*Carex merritt-fernaldii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Michaux's Sedge	*Carex michauxiana*	Not Listed	Not Listed	Not Listed	Secure	S3
Mistassini Primrose	*Primula mistassinica*	Not Listed	Not Listed	Not Listed	Secure	S3
Nannyberry	*Viburnum lentago*	Not Listed	Not Listed	Not Listed	Secure	S2
Narrow-leaved Beaked Sedge	*Carex rostrata*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Narrow-leaved Blue-eyed-grass	*Sisyrinchium angustifolium*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Narrow-Leaved Gentian	*Gentiana linearis*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Narrow-leaved Panic Grass	*Dichanthelium linearifolium*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Necklace Spike Sedge	*Carex ormostachya*	Not Listed	Not Listed	Not Listed	Secure	S3
New England Violet	*Viola novae-angliae*	Not Listed	Not Listed	Not Listed	Sensitive	S2
New York Aster	*Symphyotrichum novi-belgii var. crenifolium*	Not Listed	Not Listed	Not Listed	Undetermined	S2?

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Nodding Ladies'-Tresses	*Spiranthes cernua*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Northern Adder's-tongue	*Ophioglossum pusillum*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Northern Arrow-Wood	*Viburnum recognitum*	Not Listed	Not Listed	Not Listed	Secure	S2
Northern Blueberry	*Vaccinium boreale*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Northern Bog Sedge	*Carex gynocrates*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Northern Bog Violet	*Viola nephrophylla*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Clustered Sedge	*Carex arcta*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Comandra	*Geocaulon lividum*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Gentian	*Gentianella amarella ssp. acuta*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Maidenhair Fern	*Adiantum pedatum*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Meadow-rue	*Thalictrum venulosum*	Not Listed	Not Listed	Not Listed	Secure	S3
Northern Water-starwort	*Callitriche hermaphroditica*	Not Listed	Not Listed	Not Listed	Secure	S2
Northern Yellow-Eyed-Grass	*Xyris montana*	Not Listed	Not Listed	Not Listed	Secure	S3
Nova Scotia Agalinis	*Agalinis neoscotica*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Nuttall's Waterweed	*Elodea nuttallii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Oakes' Pondweed	*Potamogeton oakesianus*	Not Listed	Not Listed	Not Listed	Secure	S3S4
One-Flowered Broomrape	*Orobanche uniflora*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Orange-fruited Tinker's Weed	*Triosteum aurantiacum*	Not Listed	Not Listed	Not Listed	Sensitive	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Pale Dogwood	*Cornus amomum ssp. obliqua*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Pale Green Orchid	*Platanthera flava var. herbiola*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Panicled Hawkweed	*Hieracium paniculatum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Pennsylvania Blackberry	*Rubus pensilvanicus*	Not Listed	Not Listed	Not Listed	Secure	S2?
Perennial Yellow Nutsedge	*Cyperus esculentus*	Not Listed	Not Listed	Not Listed	Secure	S3
Pickering's Reed Grass	*Calamagrostis pickeringii*	Not Listed	Not Listed	Not Listed	Secure	S3
Plantain-Leaved Sedge	*Carex plantaginea*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Poison Ivy	*Toxicodendron radicans*	Not Listed	Not Listed	Not Listed	Sensitive	S2?
Prairie Sedge	*Carex prairea*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Prickly Hornwort	*Ceratophyllum echinatum*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Prototype Quillwort	*Isoetes prototypus*	Special Concern	Endangered	Special Concern	At Risk	S2
Pubescent Sedge	*Carex hirtifolia*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Purple Clematis	*Clematis occidentalis*	Not Listed	Not Listed	Not Listed	Secure	S3
Purple-stemmed Gentian	*Gentiana rubricaulis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Purple-veined Willowherb	*Epilobium coloratum*	Not Listed	Not Listed	Not Listed	Sensitive	S2?
Pussy-Toes	*Antennaria howellii ssp. petaloidea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Quebec Hawthorn	*Crataegus submollis*	Not Listed	Not Listed	Not Listed	Sensitive	S3?
Rand's Eyebright	*Euphrasia randii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Red Bulrush	*Blysmus rufus*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Red Pigweed	*Chenopodium rubrum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Red-disked Yellow Pond-lily	*Nuphar lutea ssp. rubrodisca*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Richardson's Pondweed	*Potamogeton richardsonii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
River Bulrush	*Schoenoplectus fluviatilis*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Rock Spikemoss	*Selaginella rupestris*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2
Rock Whitlow-Grass	*Draba arabisans*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Rock Whitlow-Grass	*Draba glabella*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Rocky Mountain Sedge	*Carex backii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Roseroot	*Rhodiola rosea*	Not Listed	Not Listed	Not Listed	Secure	S3
Rosy Sedge	*Carex rosea*	Not Listed	Not Listed	Not Listed	Secure	S3
Rough Dropseed	*Sporobolus compositus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Rough Hawthorn	*Crataegus scabrida*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Round-leaved Sundew	*Drosera rotundifolia var. comosa*	Not Listed	Not Listed	Not Listed	Undetermined	S1?
Round-lobed Hepatica	*Hepatica nobilis var. obtusa*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Rugulose Moonwort	*Botrychium rugulosum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Russet Cotton-Grass	*Eriophorum chamissonis*	Not Listed	Not Listed	Not Listed	Secure	S3
Russet Sedge	*Carex saxatilis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Sage Willow	*Salix candida*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Sago Pondweed	*Stuckenia pectinata*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Saltmarsh Sedge	*Carex salina*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Saltmarsh Starwort	*Stellaria humifusa*	Not Listed	Not Listed	Not Listed	Secure	S3
Sandbar Willow	*Salix interior*	Not Listed	Not Listed	Not Listed	Secure	S3
Scabrous Black Sedge	*Carex atratiformis*	Not Listed	Not Listed	Not Listed	Secure	S3
Seabeach Dock	*Rumex pallidus*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Seabeach Ragwort	*Senecio pseudoarnica*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Sea-Side Dock	*Rumex maritimus*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Seaside Spurge	*Chamaesyce polygonifolia*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Seneca Snakeroot	*Polygala senega*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Sheathed Sedge	*Carex vaginata*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Shining Ladies'-Tresses	*Spiranthes lucida*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Showy Lady's-Slipper	*Cypripedium reginae*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Showy Orchis	*Galearis spectabilis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Siberian Water Milfoil	*Myriophyllum sibiricum*	Not Listed	Not Listed	Not Listed	Secure	S3
Slender Agalinis	*Agalinis tenuifolia*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Slender Beakrush	*Rhynchospora capillacea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Slender-Leaved Sundew	*Drosera linearis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Small Waterwort	*Elatine minima*	Not Listed	Not Listed	Not Listed	Secure	S3
Small White Aster	*Symphyotrichum racemosum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Small Yellow Lady's-Slipper	*Cypripedium parviflorum var. makasin*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Small Yellow Pond-lily	*Nuphar lutea ssp. pumila*	Not Listed	Not Listed	Not Listed	Secure	S3
Small-flowered Agalinis	*Agalinis paupercula var. borealis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Small-flowered Bittercress	*Cardamine parviflora var. arenicola*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Small-Head Rush	*Juncus brachycephalus*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Small-headed Beakrush	*Rhynchospora capitellata*	Not Listed	Not Listed	Not Listed	Secure	S3
Small-spike False-nettle	*Boehmeria cylindrica*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Smooth Alder	*Alnus serrulata*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Smooth Aster	*Symphyotrichum laeve*	Not Listed	Not Listed	Not Listed	Undetermined	S1
Smooth Hedge-Nettle	*Stachys tenuifolia*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Smooth Sweet Cicely	*Osmorhiza longistylis*	Not Listed	Not Listed	Not Listed	Sensitive	S2?
Smooth Twigrush	*Cladium mariscoides*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Snailseed Pondweed	*Potamogeton bicupulatus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2
Southern Mudwort	*Limosella australis*	Not Listed	Not Listed	Not Listed	Secure	S3
Southern Twayblade	*Listera australis*	Not Listed	Endangered	Not Listed	At Risk	S2
Southern Water Plantain	*Alisma subcordatum*	Not Listed	Not Listed	Not Listed	Undetermined	S1
Sparse-Flowered Sedge	*Carex tenuiflora*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Spotted Coralroot	*Corallorhiza maculata var. occidentalis*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Spotted Coralroot	*Corallorhiza maculata var. maculata*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Spotted Coralroot	*Corallorhiza maculata*	Not Listed	Not Listed	Not Listed	Sensitive	S3S4
Spreading Wild Rye	*Elymus hystrix var. bigeloviana*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Star Duckweed	*Lemna trisulca*	Not Listed	Not Listed	Not Listed	Secure	S2
Starved Panic Grass	*Dichanthelium depauperatum*	Not Listed	Not Listed	Not Listed	Secure	S3
Sterile Sedge	*Carex sterilis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Sticky False-Asphodel	*Triantha glutinosa*	Not Listed	Not Listed	Not Listed	Secure	S3
Sticky Goldenrod	*Solidago simplex var. monticola*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Sticky Goldenrod	*Solidago simplex var. racemosa*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Sticky Goldenrod	*Solidago simplex ssp. randii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Sticky Goldenrod	*Solidago simplex*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Stiff Aster	*Ionactis linariifolius*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Straight-leaved Pondweed	*Potamogeton strictifolius*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Strawberry-blite	*Chenopodium capitatum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Swamp Fly Honeysuckle	*Lonicera oblongifolia*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Swamp Loosestrife	*Decodon verticillatus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Swamp Rose	*Rosa palustris*	Not Listed	Not Listed	Not Listed	Secure	S3
Swamp Valerian	*Valeriana uliginosa*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Sweet Wood Reed Grass	*Cinna arundinacea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Tall Cinquefoil	*Potentilla arguta*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Tall Goldenrod	*Solidago altissima*	Not Listed	Not Listed	Not Listed	Secure	S2
Tender Sedge	*Carex tenera*	Not Listed	Not Listed	Not Listed	Secure	S3
Ten-rayed Sunflower	*Helianthus decapetalus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Terrestrial Water-Starwort	*Callitriche terrestris*	Not Listed	Not Listed	Not Listed	Undetermined	S1
Thin-leaved Sedge	*Carex cephaloidea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Thread-leaved Pondweed	*Stuckenia filiformis ssp. alpina*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Thread-Like Naiad	*Najas gracillima*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Thyme-Leaved Speedwell	*Veronica serpyllifolia ssp. humifusa*	Not Listed	Not Listed	Not Listed	Secure	S3
Toothed Flatsedge	*Cyperus dentatus*	Not Listed	Not Listed	Not Listed	Secure	S3
Torrey's Bulrush	*Schoenoplectus torreyi*	Not Listed	Not Listed	Not Listed	Secure	S3
Tower Mustard	*Arabis glabra*	Not Listed	Not Listed	Not Listed	Undetermined	S3
Tuckerman's Quillwort	*Isoetes tuckermanii*	Not Listed	Not Listed	Not Listed	Secure	S3
Tuckerman's Sedge	*Carex tuckermanii*	Not Listed	Not Listed	Not Listed	Secure	S3
Tufted Love Grass	*Eragrostis pectinacea*	Not Listed	Not Listed	Not Listed	Secure	S2?
Van Brunt's Jacob's-ladder	*Polemonium vanbruntiae*	Threatened	Threatened	Threatened	At Risk	S1
Variable-leaved Water Milfoil	*Myriophyllum heterophyllum*	Not Listed	Not Listed	Not Listed	Secure	S3
Vasey's Pondweed	*Potamogeton vaseyi*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Virginia Chain Fern	*Woodwardia virginica*	Not Listed	Not Listed	Not Listed	Sensitive	S2

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Virginia St John's-wort	*Triadenum virginicum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Wallrue Spleenwort	*Asplenium ruta-muraria var. cryptolepis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Water Awlwort	*Subularia aquatica var. americana*	Not Listed	Not Listed	Not Listed	Secure	S3
Water Blinks	*Montia fontana*	Not Listed	Not Listed	Not Listed	May Be at Risk	SH
Water Pygmyweed	*Crassula aquatica*	Not Listed	Not Listed	Not Listed	Secure	S3
Water Smartweed	*Polygonum amphibium var. emersum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Water Stargrass	*Heteranthera dubia*	Not Listed	Not Listed	Not Listed	Secure	S3
Western Dock	*Rumex aquaticus var. fenestratus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2
Western Hairy Rockcress	*Arabis hirsuta var. pycnocarpa*	Not Listed	Not Listed	Not Listed	Secure	S3
White Adder's-Mouth	*Malaxis brachypoda*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
White Cut Grass	*Leersia virginica*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
White Fringed Orchid	*Platanthera blephariglottis*	Not Listed	Not Listed	Not Listed	Secure	S3
White Mountain Saxifrage	*Saxifraga paniculata ssp. neogaea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
White Vervain	*Verbena urticifolia*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
White-stemmed Pondweed	*Potamogeton praelongus*	Not Listed	Not Listed	Not Listed	Secure	S2S3
White-tinged Sedge	*Carex albicans var. emmonsii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Whorled Milkwort	*Polygala verticillata var. verticillata*	Not Listed	Not Listed	Not Listed	Undetermined	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Whorled Water Milfoil	*Myriophyllum verticillatum*	Not Listed	Not Listed	Not Listed	Secure	S3
Whorled Yellow Loosestrife	*Lysimachia quadrifolia*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Wiegand's Sedge	*Carex wiegandii*	Not Listed	Not Listed	Not Listed	Secure	S3
Wiegand's Wild Rye	*Elymus wiegandii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Wild Leek	*Allium tricoccum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Willow-leaved Aster	*Symphyotrichum praealtum*	Threatened	Not Listed	Threatened	Exotic	SNA
Woodland Pinedrops	*Pterospora andromedea*	Not Listed	Endangered	Not Listed	At Risk	S1
Woolly Beach-heath	*Hudsonia tomentosa*	Not Listed	Not Listed	Not Listed	Secure	S3
Yellow Ladies'-tresses	*Spiranthes ochroleuca*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Yellow Spikerush	*Eleocharis olivacea*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Yellow Water Buttercup	*Ranunculus flabellaris*	Not Listed	Not Listed	Not Listed	Secure	S2
Non-Vascular Plants						
a Moss	*Anomodon viticulosus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
a Moss	*Bryum salinum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
a Moss	*Dichelyma falcatum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
a Moss	*Racomitrium ericoides*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
a Moss	*Pseudotaxiphyllum distichaceum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
a Moss	*Pohlia filum*	Not Listed	Not Listed	Not Listed	Undetermined	S1?
a moss	*Anomobryum filiforme*	Not Listed	Not Listed	Not Listed	Undetermined	S1?
a Moss	*Platylomella lescurii*	Not Listed	Not Listed	Not Listed	Undetermined	S1?

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
a Moss	*Brachythecium digastrum*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
a Moss	*Anomodon tristis*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1S2
a Moss	*Amphidium mougeotii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
a Moss	*Campylium polygamum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
a Moss	*Physcomitrium immersum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
a Moss	*Racomitrium fasciculare*	Not Listed	Not Listed	Not Listed	Sensitive	S2
a Moss	*Ulota phyllantha*	Not Listed	Not Listed	Not Listed	Sensitive	S2
a Moss	*Zygodon viridissimus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
a Moss	*Dicranella cerviculata*	Not Listed	Not Listed	Not Listed	Sensitive	S3
a Moss	*Pleuridium subulatum*	Not Listed	Not Listed	Not Listed	Sensitive	S3
a Moss	*Schistidium maritimum*	Not Listed	Not Listed	Not Listed	Secure	S3
a Moss	*Hypnum fauriei*	Not Listed	Not Listed	Not Listed	Secure	S3S4
a Moss	*Isopterygiopsis muelleriana*	Not Listed	Not Listed	Not Listed	Secure	S3S4
a Moss	*Pohlia annotina*	Not Listed	Not Listed	Not Listed	Secure	S3S4
a Moss	*Tortula truncata*	Not Listed	Not Listed	Not Listed	Secure	S3S4
a Moss	*Racomitrium microcarpon*	Not Listed	Not Listed	Not Listed	Secure	S3S4
a Moss	*Limprichtia revolvens*	Not Listed	Not Listed	Not Listed	Secure	S3S4
a Moss	*Leucodon brachypus*	Not Listed	Not Listed	Not Listed	May Be at Risk	SH
a Peatmoss	*Sphagnum subfulvum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
a Peatmoss	*Sphagnum angermanicum*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
a Peatmoss	*Sphagnum torreyanum*	Not Listed	Not Listed	Not Listed	Secure	S3
a Peatmoss	*Sphagnum lescurii*	Not Listed	Not Listed	Not Listed	Undetermined	S3?
Acid-Soil Moss	*Trichostomum tenuirostre*	Not Listed	Not Listed	Not Listed	Secure	S3
Alder Silk Moss	*Plagiothecium latebricola*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Austin's Peat Moss	*Sphagnum austinii*	Not Listed	Not Listed	Not Listed	Secure	S3
Awl-leaved Forklet Moss	*Dicranella subulata*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Blue Felt Lichen	*Degelia plumbea*	Special Concern	Special Concern	Special Concern	May Be at Risk	S1
Bonjean's Broom Moss	*Dicranum bonjeanii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Boreal Felt Lichen - Atlantic pop.	*Erioderma pedicellatum (Atlantic pop.)*	Endangered	Endangered	Endangered	At Risk	SH
Brown Shield Moss	*Buxbaumia aphylla*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Central Peat Moss	*Sphagnum centrale*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Common Large Wetland Moss	*Calliergonella cuspidata*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Common Threadwort	*Cephaloziella divaricata*	Not Listed	Not Listed	Not Listed	Not Adressed	S2S4
Curved-leaved Plait Moss	*Hypnum curvifolium*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Delicate Dogtooth Moss	*Cynodontium tenellum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Dimorphous Tangle Moss	*Heterocladium dimorphum*	Not Listed	Not Listed	Not Listed	Secure	S3
Egg Flapwort	*Jungermannia obovata*	Not Listed	Not Listed	Not Listed	Not Adressed	S1S3

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Elf Bloom Moss	*Schistidium agassizii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Entire-leaved Nitrogen Moss	*Tetraplodon mnioides*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Erect-fruited Iris Moss	*Distichium capillaceum*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Field Ragged Moss	*Brachythecium campestre*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Flat-leaved Peat Moss	*Sphagnum platyphyllum*	Not Listed	Not Listed	Not Listed	Undetermined	S1?
Geniculate Four-tooth Moss	*Tetraphis geniculata*	Not Listed	Not Listed	Not Listed	Secure	S3
Ghost Antler Lichen	*Pseudevernia cladonia*	Not Listed	Not Listed	Not At Risk	Undetermined	S3
Golden Fuzzy Fen Moss	*Tomentypnum nitens*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Greater Broom Moss	*Dicranum majus*	Not Listed	Not Listed	Not Listed	Secure	S3
Hairlike Dichelyma Moss	*Dichelyma capillaceum*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Hair-pointed Moss	*Cirriphyllum piliferum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Hooked Scorpion Moss	*Scorpidium scorpioides*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Imbricate Yew-leaved Moss	*Taxiphyllum deplanatum*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Lanky Moss	*Rhytidiadelphus loreus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Lesser Bird's-claw Beard Moss	*Barbula convoluta*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Lesser Pocket Moss	*Fissidens bryoides*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Light Beaked Moss	*Eurhynchium hians*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Lindberg's Peat Moss	*Sphagnum lindbergii*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Little Groove Moss	*Aulacomnium androgynum*	Not Listed	Not Listed	Not Listed	Secure	S3

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Long-stalked Fine Wet Moss	*Campylium radicale*	Not Listed	Not Listed	Not Listed	Undetermined	S1S2
Luminous Moss	*Schistostega pennata*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Meadow Plait Moss	*Hypnum pratense*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Mountain Hair Moss	*Pogonatum dentatum*	Not Listed	Not Listed	Not Listed	Secure	S3
Mucronate Screw Moss	*Tortula mucronifolia*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Muehlenbeck's Bryum Moss	*Bryum muehlenbeckii*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Mustard Kidney Lichen	*Nephroma laevigatum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S2
Olive Peat Moss	*Sphagnum majus*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Pale Bryum Moss	*Bryum pallescens*	Not Listed	Not Listed	Not Listed	Undetermined	S1S2
Pale Cow-hair Moss	*Ditrichum pallidum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Pear-shaped Urn Moss	*Physcomitrium pyriforme*	Not Listed	Not Listed	Not Listed	Sensitive	S2
Pinnate Scalewort	*Porella pinnata*	Not Listed	Not Listed	Not Listed	Not Adressed	S1S3
Purple-margined Liverwort	*Reboulia hemisphaerica*	Not Listed	Not Listed	Not Listed	Not Adressed	S1S3
Red Forklet Moss	*Dicranella rufescens*	Not Listed	Not Listed	Not Listed	Undetermined	S3?
Rigid Screw Moss	*Didymodon rigidulus*	Not Listed	Not Listed	Not Listed	Sensitive	S2S3
Schreber's Forklet Moss	*Dicranella schreberiana*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Showy Bristle Moss	*Orthotrichum speciosum*	Not Listed	Not Listed	Not Listed	Secure	S2
Sickle-leaved Golden Moss	*Tomentypnum falcifolium*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Sieve-Toothed Moss	*Coscinodon cribrosus*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Common Name	Scientific Name	SARA[1]	NB SAR[2]	COSEWIC[3]	NB General Status[4]	S-Rank[5]
Slender Smoothcap Moss	*Atrichum tenellum*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Small Mouse-tail Moss	*Myurella julacea*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Smaller Fern Moss	*Rauiella scita*	Not Listed	Not Listed	Not Listed	Sensitive	S3
Southern Dung Moss	*Splachnum pennsylvanicum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Sphagnum	*Sphagnum macrophyllum*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Spurred Broom Moss	*Dicranum spurium*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Spurred Threadwort	*Cephaloziella elachista*	Not Listed	Not Listed	Not Listed	Not Addressed	S1S3
Strumose Dogtooth Moss	*Cynodontium strumiferum*	Not Listed	Not Listed	Not Listed	Sensitive	S1S2
Three-ranked Cold Moss	*Meesia triquetra*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Three-ranked Moss	*Calliergon trifarium*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Toothed-leaved Nitrogen Moss	*Tetraplodon angustatus*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Toothless Grimmia Moss	*Grimmia anodon*	Not Listed	Not Listed	Not Listed	Undetermined	SH
Tree Pelt Lichen	*Peltigera collina*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1
Twisted Peat Moss	*Sphagnum contortum*	Not Listed	Not Listed	Not Listed	Secure	S3?
Velvet Ragged Moss	*Brachythecium velutinum*	Not Listed	Not Listed	Not Listed	Secure	S3S4
Yew-leaved Pocket Moss	*Fissidens taxifolius*	Not Listed	Not Listed	Not Listed	May Be at Risk	S1

Notes: [1]*SARA*, 2015

[2]NB *SARA*, 2015

[3]COSEWIC, 2015

[4]NB DNR, 2015

[5]ACCDC, 2015 - Of note is that sightings of many of the most common species are unreported to the ACCDC, and are therefore under-represented or absent from the database. Consequently, a review of the ACCDC data reveals predominantly rare or noteworthy species despite the fact that these species represent a small fraction of the existing fish community in the area.